

# Are stock returns elevated under left-wing governments in Finland? The evidence from 1917-2007

Finance

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## Abstract

### PURPOSE OF THE STUDY

The purpose of this study is to determine whether or not stock returns are higher under left wing governments. The common wisdom might be that right-wing, fiscal conservative, parties are better for economics but the results obtained in studies have been contrary, and mixed. This study will add to the discussion by studying this effect in Finland. Finland has a multi-party parliamentary system, unlike many countries including the United States, and this study contributes by creating a freely varying leftist variable for governments instead of using binary values. Additionally, I have newly created a long-term Finnish stock index dating back to 1917.

### DATA AND METHODOLOGY

The main data set is comprised of monthly observations for value and equal-weighted total return indexes from the Finnish stock market during a time period between 1917 and 2007. In order to evaluate Finnish governments over the decades I created a (non-binary) political variable that encapsulates the left-right -wing orientation of sixty-two governments incumbent during the time period.

To test my hypothesis I complete univariate analysis and ran a series of regressions. I conduct OLS regression on value-weighted and equal-weighted real and excess stock returns alike. To obtain robust results with long time series I will also utilize GARCH regressions for the same variables. All the regressions are both with binary left-right and freely varying “leftist” variables. To determine, if possible, abnormal returns are expected or not, I will also test for election shocks. A greater volatility (risk) of stock returns for left or right-wing governments can explain a difference in stock returns levels as well, and it will be further examined in this study.

### RESULTS

Similar to earlier studies, I find significant abnormal excess returns and non-significant real returns during incumbencies of left-wing governments. The results are more evident when using freely varying leftist variables. Interestingly, abnormal left-wing returns are realized around the election months. Inflation and volatility are on average higher for left-wing governments but this does not alone explain the abnormal stock returns under left-wing governments’ incumbencies.

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**Keywords** Presidential premium, left-wing government, stock returns

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## Tiivistelmä

### TUTKIMUKSEN TAVOITTEET

Tämän tutkielman tarkoituksena on selvittää ovatko osaketuotot olleet suurempia vasemmisto hallitusten aikana. Kansanviisautena sanotaan, että oikeistohallitukset tukevat vasemmistohallitukseen verrattuna paremmin talouden kehitystä, mutta todellisuudessa tutkimustulokset ovat usein olleet päinvastaisia. Tarkoitukseni on ottaa osaa keskusteluun esittelemällä uutena lähdeaineistona 90 vuotta käsittävä aineiston Suomen osakemarkkinoilta. Koska Suomi on monipuolue järjestelmä, otan myös uuden näkökulman, jossa käytän binääriarvon sijaan vapaasti muuttuvaa vasemmistolaisuusarvoa selittämään osakekurssien kehitystä.

### TUTKIMUSMENETELMÄ JA LÄHDEAINEISTO

Tutkimuksen lähdeaineistona on kaksi kuukausitasoista Suomen osakemarkkinoiden kokonaistuottoindeksiä vuosilta 1917-2007, joista toinen on markkina-arvoilla painotettu ja toinen painottamaton, sekä inflaatio ja riskitön korkotaso indexit. Suomen hallitusten vasemmistolaisuutta mitataan eduskunta- ja kunnallisvaalitutkimukseen perustuvalla vasemmistoarvolla.

Tutkin aineistoa käyttämällä yhdenmuuttujan analyysiä sekä regressoin inflaatio- ja korkokorjatut tuottoindeksit OLS ja GARCH regressiolla. Regressioissa käytän sekä binääristä että vapaasti muuttuvaa vasemmistolaisuusarvoa selittävänä tekijänä. Myös riskin osuus tuottoodotuksia suuruuteen vaikuttavamna tekijänä tutkitaan. Lopuksi työssä tutkitaan ovatko epänormaalit tuotot odotettuja vai odottamattomia.

### TUTKIMUSTULOKSET

Tulokseni osoittavat, että korkokorjatut osaketuotot ovat tilastollisesti merkitsevästi suurempia vasemmistohallitusten alaisuudessa. Inflaatiokorjatut osaketuotot ovat myös suurempia vasemmistohallitusten alaisuudessa, mutta tulokset eivät ole tilastollisesti merkitseviä. Sijoittavat hinnoittelevat vasemmiston voiton osakekursseihin vaalien jälkeisinä kuukausina. Inflaatio ja osakemarkkinoiden volatilitetti ovat hiukan korkeampia vasemmistohallitusten alaisuudessa, mikä ei kuitenkaan selitä kokonaan suurempia tuottoja.

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**Keywords** Presidential premium, left-wing government, stock returns

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## Table of Contents

1.	Introduction.....	6
1.1	Background and motivation.....	6
1.2	Research problem and purpose .....	6
1.3	Contribution .....	7
1.4	Limitations of the study.....	8
1.5	Main findings .....	9
1.6	Structure of the study.....	10
2.	Literature Review .....	11
2.1	Government policies and stock market.....	11
2.2	Efficient market hypothesis.....	12
2.3	Political cycles.....	13
2.4	Presidential premium and Election shocks.....	14
2.4.1	Evidence supporting Democratic Premium .....	14
2.4.2	Evidence disputing presidential premium .....	18
2.4.3	Election shocks .....	20
3.	Hypothesis .....	23
4.	Data and Methodology.....	24
4.1	Data.....	24
4.1.1	Financial variables.....	24
4.1.2	Calculation of the financial variables .....	25
4.1.3	Motivation for the political variable .....	27
4.1.4	The leftist variable.....	30
4.1.5	Political data sets for the leftist variable calculations.....	32
4.2	Methodology.....	33
4.2.1	OLS estimation .....	34
4.2.2	GARCH regression.....	35
4.2.3	Expected vs. unexpected returns.....	36
4.2.4	Leftist risk premium .....	36
5.	Empirical results .....	38
5.1	Univariate analysis .....	38
5.2	OLS regression .....	40
5.2.1	The binary variable .....	40
5.2.2	The freely varying leftist variable .....	42

5.3 GARCH regression.....	43
5.3.1 The binary variable .....	43
5.3.2 The freely varying leftist variable .....	45
5.4 Expected vs. Unexpected returns.....	46
5.5 Leftist risk premium .....	51
6. Conclusions.....	54
7. References .....	56
8 Appendix .....	61

## LIST OF TABLES

Table 1: Summary statistics of the financial variables .....	26
Table 2: Summary of the leftist variables.....	33
Table 3: Univariate analysis of the average returns under the left and right-wing governments .....	39
Table 4: The average returns under the left and right-wing governments (OLS binary regression) .....	41
Table 5: The average difference in returns under the left and right-wing governments (OLS leftist variable regression) .....	42
Table 6: The average returns under the left and right-wing governments (GARCH binary regression).....	44
Table 7: The average difference in returns under the left and right-wing governments (GARCH leftist variable regression) .....	45
Table 8: Univariate analysis of the election shocks.....	49
Table 9: The average returns under the left and right-wing governments (OLS regression explained by the leftist variable and controlled for the election months) .....	50
Table 10: Stock return volatility (Univariate analysis).....	52
Table 11: The average difference in volatility under the left and right-wing governments (OLS leftist variable regression) .....	52
Table 12: Significance of the leftist variable explaining stock returns when volatility is controlled (OLS regression) .....	53

## LIST OF FIGURES

Figure 1. Distribution of Governments in the leftist axis .....	31
Figure 2. The election shocks: abnormal leftist returns.....	48
Figure 3. The election shocks: Value-weighted excess return.....	48

**KEY DEFINITIONS**

Presidential premium = abnormal returns being accrued during either Democratic or Republican presidencies

VWER = value-weighted excess total return index

VWRR = value-weighted real total return index

EWER = equal-weighted excess total return index

EWRR = equal-weighted real total return index

RIR = real interest rate return total index

Binary leftist variable = a Boolean variable that receives a value of 1 (left wing) or 0 (right wing) depending on the political orientation of a government.

Freely varying leftist variable = a float variable that receives values from 0 (extreme rightest) to 10 (extreme leftist) depending on the political orientation of a government.

## 1. Introduction

Yes, stock returns are elevated under left-wing governments. Results presented in this paper support a view that returns in the Finnish stock market have been higher during incumbencies of left-wing governments. Interestingly the abnormal returns have accrued during the first months of the parliamentary cycle.

### 1.1 Background and motivation

Study of presidential premiums has been extensive in the United States (US) and gathered a lot of media attention albeit unanimous consensus of the phenomenon has not been reached. Hensel and Ziemba (1995) were the first to show presidential premiums in small firm stock returns during Democratic regimes and further support was provided by Chittenden, Jensen and Johnson (1999) and Santa-Clara and Valkanov (2003). Since the latter authors published their comprehensive study claiming there to be “unresolvable presidential puzzle”, many of the following papers have focused on using alternative methodology to disprove Santa-Clara and Valkanov’s arguments. Therefore much of the debate has been focused on methodological issues (Campbell and Li (2004), Powell et al. (2007), Sy and Zaman (2011)) and expansion of dataset to other countries has been rather exceptional. There are many good reasons for this. First and foremost, many countries do not have a similar bi-party system that is divided in a left-right wing axis. Secondly, the US stock market has been the most developed, the largest and the best documented of all stock markets during the last century. Finally, stability of the US political system has been unequalled. There have been fewer than ten presidents since the start of the US stock exchange in 1817 in which the office was vacated before the end of the president’s term. The downside of a stable political system in the US is that there has only been eighteen presidential cycles since 1927, a year that e.g. Santa-Clara and Valkanov use as a starting point in their study. The low number of presidential cycles diminishes the statistical confidence of the results and has led to a debate over proper statistical methodology.

Therefore conducting a study with a new international time-series covering stock returns for almost 100-years and including sixty-two governmental cycles will add on to existing literature.

### 1.2 Research problem and purpose

The purpose of this study is to determine whether left or right-wing governments have been better for the stock market in Finland. The reason why either left or right-wing governments are preferable to investors may vary from monetary or fiscal policies to economic policies. It is also plausible to

assume that different kinds of policies are preferred by electors in different times, and therefore either left or right-wing governments are more probable to inherit a worse economic environment. This is actually supported by recent events<sup>1</sup> as the current government as of 2014 has been debating the issue of moving budget cuts further into the future for the proceeding governments when the elections are only fifteen-months away. Whether the timing is coincidental or we are witnessing opportunistic business cycles, this study's objective and aim is to determine how a left leaning government has affected stock returns between 1918 and 2007 in Finland.

Another aim of the paper is to study how the Finnish stock market has reacted to election results. In case the market is effected and there is a leftist premium, the stock market should react instantly when the election results are published. Although, the reaction may differ depending on how investors see the new government affecting the stock market's volatility and expected returns, it is extremely interesting to examine if there is a notable correction in stock prices.

### 1.3 Contribution

As discussed earlier, the preceding literature has focused on US data and to solve the difference between Republican and Democratic governments, with the exception of Bohl and Gottschalk (2006) who studied political cycles in fifteen countries and very few stand-alone single country studies (Doepke and Pierdzioch (2004), Worthington (2009)). Bialkowski, Gottschalk and Wisniewski (2006) expanded Bohl and Gottschalk's work to include twenty four countries, including Finland. Nevertheless, their data set only goes back to 1987 and includes only six governments.

I will expand this research with Finnish data that has not been available until recently. Thanks to my long data set from a country that has had a relatively undeveloped stock market until the 1980s, the study gives a slightly different angle examining more regulated and a less efficient market. Moreover, there have been seventy-two governments, sixty-two of which I am able to evaluate, during my sample period which provides a data set with more observations than what is available with the US data. More importantly, I am studying a multi-party system where as the existing study has been focused on a two party system. The following section explains the full ramifications of studying a multi-party system.

The motivation to study the difference in stock returns between Republicans and Democrats has not been based on any specific theoretical framework rather than just on intuitive. The common separator

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<sup>1</sup> Jutta Urpilainen (SDP) suggested 30.1.2014 (Helsingin Sanomat) that government should discuss about postponing debt payment schedules.



of parties in the US has long been their positioning on a left-right axis that illustrates their attitude towards free markets and individualism. This is to include their dualism attitude and culture from their founding of the US constitution, grounded on a free market and Adam Smith's economic principles. Multi-party systems inevitably means that different governments rank differently on left-right-wing axis and this offers me an excellent chance to scrutinize how this specific attribute effects the Finnish stock market. Therefore, I am able to study the phenomenon more explicitly than was in previous studies.

Of course, placing Finnish governments on a left-right axis consequently means that I have to create a variable that is freely varying instead of a binary variable that is normally used. The objectives and aims of this study offer an excellent opportunity to examine how much a transition of one unit in the left-right axis effects stock returns per se with robust results. This is important since previous studies have suffered from insignificance of results caused by a small number of governments that have ruled during modern stock markets.

Fortunately, modeling of a variable that captures positioning of a government on the left-right axis is possible. Furthermore, it is plausible to extend this variable over time which is an attribute to the relative stability of the Finnish political environment. To conclude, I believe I am able to bring a new perspective to the existing literature by defining the explanatory variable more accurately with the Finnish context.

#### 1.4 Limitations of the study

There exist few limitations in my study compared to previous studies conducted on abnormal stock returns related to political variables. In this section I will go through the key limitations of my study and comment on their effect to the robustness of my results.

Hensel and Ziemba (1995) find that small firms gain higher returns under Democratic governments. There is uncertainty though if the higher returns can be explained with difference in stock return volatilities. This has been studied by using size decile indexes within a capital asset pricing model (Santa-Clara and Valkanov, 2003) and three-factor pricing model (Sy and Zaman, 2011). Sy and Zaman suggest that even though total market volatility does not change, small firms become increasingly risky and therefore generate higher returns under Democratic (left-wing) governments. Since I do not have size deciles at my disposal I will not be able to directly test if the  $\beta$  for small companies is greater for either left or right-wing governments. However, I will use a comparison between value-weighted and equal-weighted indexes to proxy the volatility shift. In case left-wing

governments induce higher volatility to small companies, the equal-weighted index should have a greater volatility since it emphasizes more weight to small companies.

Unlike in the US, the development of the Finnish stock market has not been as well recorded. For purposes of studying volatility and election shock effect daily data return data would have been appropriate. In this study I form yearly volatility from the monthly observations and also study election shocks by only a month by month basis.

With a long time series like this there are bound to be problems related to the data. In Finnish political history there seems to be long time periods up to twenty years that either left-wing or right-wing governments have been in power almost exclusively. For example, numerically the most right-wing governments were incumbent between the emancipation of Finland and mid-1930s whereas the time period from 1966 until 1990 was dominated by left-wing governments. Even though I discuss about the relation between GDP growth and stock market returns, it is fair to suggest that the stock market was facing a different environment, not related to the political environment at the time, in the 1920s compared to e.g. the 1970s or 1980s. Considering the changing environment over the decades, it is presumable that explanatory power of political variable might be rather small. Nevertheless, I note that the purpose of this study is to find a possible relation between abnormal returns and left-wing governments and therefore I find it acceptable for the political variable to have a small explanatory power.

As explained in more detail in the methodology, I cannot use business cycle control variables to fully isolate business cycle effect and therefore have settled to using log value of yearly GDP growth. To see graphical illustration of political orientation of governments and GDP growth, see appendix H.

Additionally, to obtain strong international evidence it could have been beneficial to expand my data sample horizontally to the Nordic countries. Nevertheless, in the scope of this study it was not possible to do similar in depth evaluations of political systems in other countries. Therefore, I opted to concentrate my resources to create a persuasive variable for Finland

### 1.5 Main findings

The main findings of the thesis are reviewed in this section. For more thorough references to existing literature and comprehensive discussion please see conclusions in Section 6.

The most striking result of this study finds that across the stock market indexes, excess and real returns are higher during left-wing governments' incumbencies. Excess returns are around six to

seven percentage points and real returns around two to three percentage points higher for left-wing governments. The leftist premium is more significant while using freely varying leftist variable as an explanatory variable than while using binary variable dividing governments to either left or right-wing bracket. The difference in excess and real returns premium is due to higher inflation during left wing incumbencies. Findings are mostly significant for excess return premiums for left-wing governments but not for real return premiums. Testing two different subsamples separately further dilutes the results to be less significant but the coefficients stay positive for left-wing premium for all subsamples and indexes. Unexpectedly, I find no indications that a left-wing return premium would be specifically driven by excess returns of small companies.

Greater volatility under left-wing governments could explain premium returns and the volatilities of almost all indexes are actually significantly higher during left-wing governments. Nevertheless, the difference in volatilities is not great enough to fully explain the difference in returns.

As a surprising result, this study finds that premium returns associated to left-wing governments are actually realized around election months; for non-election months there is no significant difference in returns during left and right-wing governments' incumbencies. The use of an election month dummy variable as an explanatory variable makes the results more robust.

The results are not conclusive at all parts due to my inability to conduct all methods used in previous literature but the results support the unresolved association between presidential cycles and stock returns.

## 1.6 Structure of the study

The study is structured as follows. Section 2 is separated into two subsections. First, in Section 2.1 I will review previous literature about stock performances under left and right-wing governments and the common ways to measure it. Thereafter, I will state my hypothesis and short motivation for them in Section 3. Section 4 reviews both data and methodology used in this study. Additionally, the motivation for political variable will be explained in this section and it briefly covers the supporting literature as well. In Section 5, I present the results of the univariate analysis and regression analyses and compare them to previous literature. Finally, in Section 6 the results are drawn together and I conclude the study.

## 2. Literature Review

This section covers the most prominent previous literature related to the Democratic premium and presidential cycles. Literature covering Finnish political parties is presented separately in Section 4 because it is closely related to the political variable and is a specific practical overview rather than a full literature review on the Finnish political system over the century.

I will first discuss the mechanism through which political systems in Western democracies can affect stock market performance. Second, I will present the effective market hypothesis because the following literature and theories are built on top of that. Third, I present relevant findings on political cycles and thereafter how election shocks are studied. Last, I lay out the most influential literature concerning political premiums on stock markets.

### 2.1 Government policies and stock market

There are several ways that governments can possibly affect the stock market performance and there is so far no comprehensive understanding in literature by which those means are and how effective they are (Chatziantoniou et al. 2013). In general, the government's possibilities to affect the stock market can be divided into direct and indirect means. Examples and evidence of governmental policies in effect are political cycles that are reviewed later in this section.

Tavares and Valkanov (2001) recognize governments being able to use fiscal and regulatory, e.g. taxation, policies to influence stock markets. These policies can have direct and indirect effects to any stock market performance. It is widely accepted that the economy is affected by government policies (Alesina et al. (1997), Drazen (2000)) and that stock market development correlates with business cycles (Fama and French, 1991). Therefore, governments can impact stock market performance indirectly via changes in overall business cycle platforms.

Alternatively to indirect mechanisms, fiscal and regulatory policies can have a deep and direct impact on stock markets. Direct effects of fiscal policies on stock markets are less studied than the effect of monetary policies, and the results are not consistent. Tobin (1969) builds a theoretical model of fiscal policies' effect on stock markets and Darrat (1988) found some limited evidence of the relation between the two. Agnello and Sousa (2013) later confirmed the direct link by showing that positive fiscal policy shocks have a negative effect on stock markets.

Additionally, it is possible that governments influence stock markets both directly and indirectly through monetary policies. Western democracies' central banks are separated from governmental authority. However, fiscal and monetary decisions are often done through legislation co-operatively (Chatziantoniou et al. (2013), Beyer et al. (2004)). Different countries differ on basis on how strict

are the political independence of their central banks. Cukierman, Webb and Neyapti (1992) have created widely cited central bank independence -index<sup>2</sup> that defines the independence of central banks. Among industrialized countries, Bundesbank (Germany) has been considered the most politically independent central bank. Finland is placed into a lower medium group among the industrialized countries. Furthermore, Maslowska (2012) examines the subject based on earlier results and also estimates based on her own calculations that Finland is in the lower middle group when sorted by legal central bank independence. Therefore, based on these studies it has been possible for Finnish governments to impact stock market returns via monetary decisions.

## 2.2 Efficient market hypothesis

Literature covering the presidential puzzle is all based on common hypothesis of efficient markets that eliminates the possibility of abnormal returns (Fama, 1970). In short, efficient market hypothesis (EMH) states that it is not possible to constantly outperform the market because all available information is already at the given time reflected in security prices and market price is an unbiased estimate of the true value of the investment. Therefore, there is an equal change at any given time that securities are under or overvalued and the only possible way to beat the market in the long run is by investing into riskier securities<sup>3</sup>.

In strong form efficiency all, public and private, information is reflected in share prices and it is impossible to gain any kind of excess returns. Semi-strong form efficiency assumes that all public information is reflected in stock prices and furthermore the prices adjust quickly to new information in the market. Furthermore, neither technical nor fundamental analysis can be used to beat the market. The least constraining, weak form efficiency, states that all past information is reflected in the market prices and technical analysis cannot be utilized to gain excess returns, whereas fundamental analysis can be used to gain excess returns (Fama, 1970).

Investors can reflect political events to stock prices by using fundamental analysis. Therefore, existing literature is essentially assuming the market to be efficient in semi-strong-form. Based on this reasoning it holds that if the market ignores new information and the information is not reflected in prices but instead abnormal returns accrue over the presidential cycle, the market has not been efficient in the semi-strong-form. The purpose of existing literature studying presidential cycles and premium has not been to challenge efficient market hypothesis but to explain the difference in returns

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<sup>2</sup> Cukierman et al. use data covering years 1950-1989, varying on country bases.

<sup>3</sup> Damoradan online: [http://pages.stern.nyu.edu/~%20adamodar/New\\_Home\\_Page/invemgmt/effdefn.htm](http://pages.stern.nyu.edu/~%20adamodar/New_Home_Page/invemgmt/effdefn.htm)

in that framework. Therefore, the focus in literature is to disprove any difference in returns or find a risk place explanation to explain Democratic, left wing, excess returns.

### 2.3 Political cycles

In this section I will present how political cycles affect stock markets. Even though this paper is not studying political cycles per se, study of political cycles are closely related to studying presidential premiums as both essentially study how presidential four-year term helps to explain the stock market development.

Political business cycles were first presented by Nordhaus (1975) who found that the beginning of the term is dictated by restrained spending whereas spending increases before the elections. The hypothesis is based on (now discredited) Philips Curve where there is a trade-off between unemployment and inflation, and that assumingly myopic voters appreciate low unemployment just before the elections rather than problems caused by high inflation.

Political cycles can be further divided into opportunistic and partisan models. Opportunistic models assume that governments maximize their popularity and the object of their policies is to get re-elected. Alternatively, partisan models, including rational partisan models, propose that decisions are based on the politics that the party represents (Alesina and Roubini, 1992).

Some of the earliest results were provided by Allevine and O'Neill (1980) who find strong evidence supporting presidential cycles when longer time periods are examined. They conclude that while stock prices are random for short periods of time, they are not random for longer periods. Authors attribute this anomaly to markets not being efficient at all times. Due to massive amounts of information, information being disregarded as non-important, limitations of trade for institutional investors and conflicts of interest; the publicly available information is not always utilized. Nevertheless, in the short run the market is too volatile to gain from abnormal returns. Huang (1985) and Hensel and Ziemba (1995) also confirm presidential cycles, and the latter finds that returns are higher in the second half compared with the first half of presidential terms for both parties. With respect to presidential cycles, Hensel and Ziemba (1995) also point out that candidates seeking re-election are likely to favor economic policies that are attractive to public and therefore cause high stock returns.

Adding to earlier studies, Herbst and Slinkman (1984) study if political-economic cycles effect on stock markets either in two- or four- year cycles. They find strong support for forty eight-month presidential cycles. Authors note that it is not clear if politics effects on the market or the other way

around, or alternatively is the political cycle just caused by resolution of uncertainty as the election is over. Stovall (1992) argue that during the early quarters of their incumbency the Administration and Federal Reserve Board are at their “tightest” but closer the elections arrive they are obligated to please people and spend more money. Adding the Democrat versus Republican view, Chittenden, Jensen, and Johnson (1999) find that higher stock returns under Democratic administration are especially true for the second half of the presidential cycle which was an expected result considering the prior studies.

As a conclusion, there is evidence supporting the political business cycle models, the most compelling of which is supporting the partisan and rational partisan models (Reichenvater, 2007).

## 2.4 Presidential premium and Election shocks

Study of presidential premiums on stock markets has been around for the last forty years. The discussion is still ongoing because the results have been mixed and there is no common understanding among academics up to this day. The academic research has actually activated in the 2000’s as many papers were published to counter Santa-Clara and Valakanov’s (2003) claims of the unsolvable presidential puzzle in the US. Next I will present how the theory has evolved and what elements are the most debated about.

### 2.4.1 Evidence supporting Democratic Premium

There are several papers that have documented Democratic return premium. Hensel and Ziemba (1995) study investment returns during Democratic and Republican administrations between 1928-1993. They utilize monthly stock return data and study stock total returns with univariate analysis. Their data consists of S&P 500 index for large firms and capitalization filtered bottom twenty percent of the New York Stock Exchange for small firms.

Hensel and Ziemba (1995) find that outside of January (January small-firm effect) small cap-firms under Democratic administration fare significantly (at the 5% level) better than small cap firms under Republican administration. For large-cap firms they find no significant difference in returns. Small firms have thirty-three percentage points higher returns under Democratic administrations for the first year and 18,59 percentage points difference for full four-year term. Authors state that the results are in line with the hypothesis of Democrats drafting expansive economic policies that favor small companies. On the contrary to stock returns, they find that cash and bond returns are actually better under Republican administrations. Inflation is higher during Democratic incumbency but the difference is not statistically significant.

The results of Democratic premium for small cap firms were supported by Chittenden, Jensen and Johnson (1999). The authors utilize univariate analysis to study stock indexes for large stocks and small stocks, and additionally several debt indexes. They use data ranging from 1929 to 1996; S&P500 for large-cap firms and a small-stock index for small-cap firms. Authors recognize the possible effects of different monetary policies and use inflation-adjusted real returns in addition to nominal returns.

For large-cap stocks Chittenden et al. find no statistical difference even though the inflation-adjusted return is 4,49 percentage point higher during Democratic presidencies. The returns to small cap-stock are 18,96 percentage points higher during Democratic presidencies. Democrats induce higher inflation to the economy and therefore bond returns are actually negative under Democratic administrations.

Booth and Booth (2003) confirm that that presidential cycle is not just a proxy of business cycle and therefore re-affirming the understanding that presidential variable is not affecting stock market returns only indirectly. They find that for small-cap firms excess returns are significantly higher during Democratic administrations whereas there is no significant difference for a large-cap portfolio. This argument was later supported by Santa-Clara and Valkanov (2003).

The mechanism between economic policies and stock markets is not fully determined but Chatziantoniou, Duffy and Filis (2013) have gathered international evidence to study the phenomena. The authors utilize a structural VAR model to study how fiscal and monetary policies jointly affect stock markets in the US, the United Kingdom (UK) and Germany. They find that both fiscal and monetary policies affect stock prices in tandem and can explain stock market development. Additionally, they state that government's fiscal policies influence the stock market directly in the UK and indirectly in all of the studied countries.

Among the most widely cited papers studying the correlation between stock market returns and the presidential cycle is Santa-Clara and Valkanov's (2003) paper "The presidential puzzle: Political cycles and the stock market". The authors study the US stock market from 1927 to 1998 by using data from CRSP. The authors build value and equal weighted portfolios that are corrected for inflation and risk-free rate, ending up with four different total return indexes that are lagged for one month.

Their findings indicate that the excess return in the stock market is higher under Democratic rather than Republican presidencies (nine percent for the value-weighted and sixteen percent for the equal-weighted portfolio), and that the difference is statistically significant. Santa-Clara and Valkanov also conduct a cross-sectional analysis with ten size decile portfolios and find that difference in returns



between the parties is inversely related to firm size. In other words, there is a great discrepancy between returns of small-cap companies with high betas when Democratic and Republican administrations are compared, whereas the discrepancy is much smaller for large-cap companies.

Santa-Clara and Valkanov perform three separate tests to conclude if the difference in returns are expected or unexpected. Firstly, the authors test if Democratic premium is just proxy to the business cycles, as there is previous evidence of higher GDP growth during Democrats incumbencies, but the results actually become more significant as business cycles are controlled. Therefore, the abnormal returns can be attributed to Democratic policies directly impacting stock market and not indirectly through changes in the economy.

Secondly, by studying regression residuals they determine that *expected* returns were 1.84 percent higher under Republicans while the *unexpected* returns were 10.84 higher under Democrats, implying that stock prices develop continuously better than the market had expected during Democratic administrations. Additionally, the authors do not find evidence supporting opportunistic political cycles that would lead to abnormal returns during the election period.

Lastly, to study if abnormal Democratic returns were just compensation for higher risk, the authors examined volatiles during both administrations' incumbencies. Contradicting the ex ante Democratic risk premium –theory, market volatility of the returns are actually 1.41 percent higher under Republican administrations.

In an effort to increase the reliability of the results, Santa-Clara and Valkanov conduct robustness checks, correct statistical inference as well as ruled out the impact of outliers that might have been distorting the data. The tests are not motivated by any specific theoretical model, the authors applied methods such as randomization-bootstrap experiments and quantile regressions in order to prove that the difference in returns during Republican and Democratic administrations are a robust feature of the data.

Additionally, the authors note that the concern of data mining cannot be dispelled before enough out-of-sample data is accumulated and therefore has to be taken into account when considering the reliability of the results. Furthermore, the possibility of “Peso” type risk<sup>4</sup> premium for Democrats cannot be tested and therefore it remains a possible reason for the difference in returns.

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<sup>4</sup> Ex ante expected returns are low due to a possible risk but since no catastrophic event happened and is therefore not observed, the ex post returns are high.

In conclusion, Santa-Clara and Valkanov find no evidence of difference in ex ante expected returns between the parties that would have explained higher realized returns under Democratic administrations. Consequently, this means that there seems to be no Democratic risk premium that would compensate for the higher returns and the findings seem to contradict the effective market hypothesis. Therefore, it appears that investors are constantly surprised by unexpectedly good returns during Democratic incumbencies and puzzled why the market has ignored the Democratic premium.

Inspired by the results of Santa-Clara and Valkanov (2003) and Booth and Booth (2003) which imply that abnormal stock returns under Democratic administrations defies the effective market hypothesis, Bohl and Gottschalk<sup>5</sup> (2006) study presidential premium and presidential cycle effect with international data set of fifteen countries. As a notable difference between the US and other studied countries, the authors note that in many countries the classification to left-wing and right-wing governments is dubious and there are long periods of time rules by either side which is detrimental to the quality of the data set.

Bohl and Gottschalk find that results are insignificant for twelve countries. Only results from Denmark, Germany and the US are consistent with previous literature, showing Democratic (left-wing) premiums for these countries. Authors also study abnormal returns around elections months for aforementioned countries that show significant Democratic premiums but find no evidence that the premium would be due to returns during election months. Therefore, Bohl and Gottschalk conclude that there is no persuasive international evidence supporting Democratic premiums or presidential cycles and it is rather an exception than a rule.

Contradicting much of the existing literature Leblang and Mukherjee (2005) actually find that stock returns are *lower* under Democratic regimes due to decreased trading. The authors study how British and the US equity markets have reacted on election results between 1930 and 2000. Adding to the previous literature, they scrutinize how politics are expected cause changes in inflation and electorate's welfare and use that as a driving force behind stock pricing. The authors build a GARCH model that examines how stock trader's response to election results affects trade volume on market and furthermore, how the trade volume affects the mean and volatility of stock prices. Based on previous literature they assume that Democratic induced high inflation will decrease trading volume and indirectly through reduced risk-premium, will eventually decrease market volatility and stock prices, both during the incumbency of left-wing governments and when their victory is expected.

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<sup>5</sup> Later expanded to 24 countries by Bialkowski, Gottschalk and Wisniewski (2007)

Change in volatility due to change in trading volume in the market is consistent with findings of Schwert (1989).

Their findings show that trading volumes actually decrease during left wing incumbencies. Contradicting much of the existing literature, the authors find that stock prices decrease under left-wing administrations. As an implication of these results, Leblang and Mukherjee suggest that right-wing governments have a greater willingness and ability and to enhance the economy and stock market in general.

#### 2.4.2 Evidence disputing presidential premium

There are several studies that have disputed the results of a presidential premium. Riley and Luksetich (1980) argue that when the actual economic performance is studied during Republican or Democratic administrations the evidence supporting actual economical differences is weak. Similarly, Huang (1985) studies six different time periods from 1832 until 1979 and finds strong evidence supporting presidential cycles but univariate analysis of nominal stock returns do not present significant abnormal results for neither party.

In more recent years, Campbell and Li (2004) contribute to the study of presidential premiums by using alternative methods to evaluate the possible anomaly. As showed by Schwert (1990) stock returns are heteroskedastic in nature and therefore instead of using the more common OLS regressions analysis method, authors utilize WLS and GARCH regressions. Similar to Leblang and Mukherjee (2005), authors also prefer GARCH models as they better capture the persistence of price volatility.

Similarly to Santa-Clara and Valkanov (2003), Campbell and Li find stock markets performing better under Democratic administrations but the results are spurious. Compared to OLS regressions, WLS and CARGH regressions are more efficient to estimate heteroskedastic variables such as stock returns and therefore less sensible to short periods of high volatility. Indeed, the authors find that the difference in stock returns between the parties is driven by periods of high volatility and during those periods stock returns are higher under Democratic governments. When controlling for high volatility periods, Campbell and Li find that neither risk nor return differ significantly between the parties.

Beyer, Jensen and Johnson (2004) study long-term changes in stock markets. Based on findings in the previous literature that connect political environment, monetary policy and macro economics (Drazen, 2001), Beyer et al. lay a hypothesis that fiscal and monetary policies are the fundamentals that also define development in stock markets. Therefore, they add to the previous literature by jointly studying policies of presidential administrations and monetary policies of Federal simultaneously, whereas previous studies have examined them separately. The authors further justify their approach

by noting, that despite the independence of central banks, monetary and fiscal policies are often planned together to enable economically desired results.

Beyer, Jensen and Johnson (2004), study large-cap companies with S&P500 index and small-cap companies with small-cap index. Similarly to Santa-Clara and Valkanov (2003), when studying political variable and stock returns in solitary, they find small companies performing significantly better during incumbencies of Democratic administrations while there is no significant difference for large-cap companies. Additionally, they find that Republicans are less prone to cause inflation to the economy. Nevertheless, when the observation period is divided into sub periods and political variables effect on stock market performance is studied jointly with monetary policy, results become spurious. The authors show that Fed's monetary policy has a significant relationship with stock and bond returns, and the changes that have been attributed to the political environment in previous literature are actually caused by changes in monetary policies.

Santa-Clara and Valkanov (2003) find that the difference in returns between left and right-wing governments are greater when comparing equal-weighted return indexes than while comparing value-weighted return indexes because equal-weighted indexes put more weight to small companies. After running regression on different size deciles Santa-Clara and Valkanov reaffirm the "size effect" that difference in returns between left and wing governments is indeed inversely related to the market capitalization of the firms. Sy and Zaman (2011) also confirm these findings but conclude that the higher returns for small companies under a left-wing government is actually just a compensation related to higher risk induced to small companies by the Democratic governments.

Sy and Zaman (2011) argue that the presidential puzzle can be explained when risk is properly taken into account. The authors find that systematic risk is conditional and that  $\beta$  varies among presidencies due to more expansive economic policies initiated by Democrats. Consequently, expansive policies cause higher inflation that leads to the tightening of monetary policies in the future. Change in monetary policies is asymmetrically bad for small companies and therefore investors require higher returns for small companies. Sy and Zaman use conditional three-factor pricing model to control exposure to market, size and value factors and run regression to allowing  $\beta$ s to vary across presidential cycles. They find that using their method the abnormal Democratic premium is no longer statistically significant.

Stangl and Jacobsen (2007) are building on previous literature and study if presidential elections have a different effect on different industries. Based on this view, the presidential premium in stock markets could be driven by few dominant industries. The authors find that unadjusted returns are

higher for Democrats during the last two years of an administration but when industry returns are corrected by using Single-index or Fama-French three factor model, the presidential premium and presidential-cycle disappears. Furthermore, Stangl and Jacobsen find no evidence supporting political cycles in industrial returns.

Powell et al. (2007) emphasize the importance of proper statistical methods. The authors argue that explanatory variable is highly persistent when used with monthly stock returns and therefore “the error term inherits the autocorrelation causing the standard error of the estimate to be downward biased and a significant relation to appear when none actually exists”. Powell et al. regress simulated stock market returns against independently generated a presidential dummy variable to study if significance of results is affected by a persistence dummy variable and data mining. As a combined effect of extending data sample back to mid-1800s and conducting simulation, the authors find that a presidential premium is insignificant.

#### 2.4.3 Election shocks

Studying stock returns around election dates has been increasingly popular during recent years and it enables evaluating the investor sentiment on election results. To better understand how to interpret abnormal returns around election dates I will go through the rationalization laid out by Santa-Clara and Valkanov (2003).

Abnormal returns can be either expected or unexpected by nature. Expected returns can be calculated with a capital asset pricing model that defines the relation with expected returns and risk. The case of a positive (negative) change in expected returns during the incumbency, can be caused by a risk premium which would lead to a sizable decline (increase) in the stock market when uncertainty of the next president is cleared. The reasoning is that investors need to be compensated for the higher risk and therefore their required return is higher which leads to lower pricing. Alternatively, the positive (negative) change in returns can be due to more (less) effective, but equally risky to stock markets, economic policies that affect stock markets by increasing cash flows either directly or indirectly. The latter case would lead to a sizable increase in the stock market when the election results are confirmed. On the other hand, in case the abnormal returns are unexpected there would be no noticeable market reaction to the election results but instead the abnormal returns would accrue along the presidential tenure.

There are some studies that find no evidence of election shocks (Santa-Clara and Valkanov (2003), Bohl and Gottschalk (2006)). Nevertheless, these results should be considered in contrast of the

findings of Cutler (1989) who present that major events are not often fully reflected in the prices even though they beforehand are expected to have a great influence to stock prices. Other studies actually argue stock markets react negatively when left wing victory in the elections is anticipated (Leblang and Mukherjee 2005). British evidence supporting negative stock market reactions because of left-wing governments assuming the office include Herron (2000), who finds that investors expect decline in the real returns during left-wing government incumbencies due to higher inflation they induce to the economy.

Nevertheless, unlike in papers studying accrued returns for the whole presidential term that have found more support for Democratic presidential premium, the contrary is true for most of papers studying election shocks. One of the earliest results is provided by Niederhoffer, Gibbs and Bullock (1970) who examine stock market movements in the US after the Election Day motivated by the hypothesis that market prefers Republican presidents over their Democratic counterparts. Consistent with their hypothesis, they find that the market rises 1,12% on average the next day after elections whereas the next day change is on average -0,81% following a Democratic victory. Lengthening the examination period to one month reveals that under Republican administration stock market returns constantly exceed the corresponding average returns under Democratic incumbencies. The authors find no evidence that stock markets actually fair better under Republican presidencies during the whole presidential cycle and therefore speculate that political events might just be related to short term movements in the market.

The study of election shocks was taken further by Riley and Luksetich (1980) who try scrutinize results in their theoretical framework and study stock market behavior around election dates and reflect their hypothesis in comparison with effective market hypothesis. The authors speculate that election results can be anticipated or the strong EMH might not hold, and therefore also test for lags as well when testing for election shocks.

Their data set consists of twenty data points from seventeen-week periods around election dates for presidential elections from 1900 to 1976 using Dow Jones Industrial Average -index. The authors apply Fama's single factor market model regression to recognize trends. In the short run they find consistently positive abnormal returns after Republican victories and respectively negative abnormal returns after Democratic victories. Additionally they find some evidence that the market reacts positively in general to presidential elections as an event because it decreases uncertainty from the market. Riley and Luksetich draw their final conclusion in the lines on MacRae's (1977) findings. MacRae studies unemployment and inflation rates and presents that electorate myopia causes political cycles. He merits that Democrats in office are shorter sighted before election to avoid loss of votes

whereas Republicans assume the rational voters to appreciate politics that are more beneficial in long term. Peel and Pope (1983) conduct a study similar to Riley and Luksetich with data from British elections and also find stock market consistently generating positive cumulative average residuals after a right-wing Prime minister president wins the elections.

Snowberg, Wolfers and Zitzewitz (2007) recognize the problem of possible two-way causation between economic and stock market development and presidential elections that makes it harder to identify the true effects of presidential administrations. To overcome this, the authors study derivative that's underlying security's value is determined by the winner of two close-call election, 2000 and 2004 elections, in the US in ten-minute interval. By running OLS regression on the aforementioned information against changes in several future contracts during the corresponding ten-minute periods, Snowberg et al. are able to isolate effects of presidential elections. As a reference to earlier studies, the author's note that due to fewer unrelated economic shocks during the short period of ten-minutes and high uncertainty of the elections, the study offers much more relevant data than many other US elections.

Snowberg et al. find the equity returns were expected to be two-three percentage higher during Republican administrations. The difference is attributed to Republican's politics being more favorable to the stock market. To explain the contradiction of their results to the historically good stock performance under Democratic administrations showed by Santa-Clara and Valkanov (2003), the authors speculate with the possibility of investors disregarding Democrat's accomplishments in the past or lack of trust for Democrats being able to fare better than Republicans in the future.

### 3. Hypothesis

In the following section I will present my hypothesis which are based on the results and observations from prior literature.

The main hypothesis in my study is that stock returns do not depend on how far on the left or right the ruling government is on the left-right axis. As presented in other related studies (see, e.g., Santa-Clara Valkanov, 2003; Campbell and Li, 2004; Sy and Zaman, 2011) the usual main hypothesis has been that there is no such a thing as a presidential premium, meaning that the government (presidential party) does not have an effect on stock performance. The difference with aforementioned studies and this study is that, in addition of using a binary variable, I am using the freely varying leftist variable as explanatory variables to explain abnormal stock returns. Therefore, my hypotheses are as follows:

*H0: The stock returns under left-wing and right-wing governments do not statistically differ from each other.*

*H1: How far on the left the ruling government is has no explanatory power on the stock returns.*



## 4. Data and Methodology

This section first describes the data sets used in this thesis. Later on in this section I will go through the methodology and the justification for the methodology that I am using to scrutinize the data.

### 4.1 Data

The following section starts by introduction of the financial variables and then moves to discuss about control variables. Thereafter, I will go through the selection of political variables and motivation behind it and finally explain the construction of the leftist variable. The data set covers years from 1917 to 2007. The entire sample period includes 1,106 monthly observations. To test the robustness of results I follow Santa-Clara and Valkanov (2003) and divide the data set to two different subsamples. The first subsample covers years from 1917 to 1986 (830 observations) and the second subsample years from 1987 to 2007 (276 observations)<sup>6</sup>. I have considered the possibility of extending data set until 2014 but due to possible inconsistencies with data and time constraints, I have decided to limit my study to the aforementioned years.

#### 4.1.1 Financial variables

Next I will go through individually the financial variables used in this research paper. Value-weighted and equal-weighted indexes, risk-free return and inflation are from datasets gathered by Nyberg and Vaihekoski (2010) for their research.

All financial variables, with the exception of gross national product (GDP) growth, are monthly observations. All returns are computed in logarithmic form<sup>7</sup> and presented in annualized percentage points.

Value-weighted index is constructed by combining total return index from November 1917 to December 1969, WI index<sup>8</sup> from 1970 to the end of 1990 and HEX/OMX yield index from 1990 to 2007. Equal-weighted index is constructed similarly except equally weighting all listed stocks. Both indexes are total return indexes that are survivorship bias-free, corrected for cash and dividends, splits and new issues.

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<sup>6</sup> Finnish equity and stock market regulation was reduced in 80's and free flow of capital was allowed which radically changed the capital market. Therefore, it is justifiable to use year 1987 for dividing the sample to two subsamples (Honkapohja, 2012).

<sup>7</sup> Use of logarithmic form is common in linear regression when there exists a non-linear relationship between independent and dependent variables or a highly skewed variable is preferred to be normally distributed (Benoit, 2011)

<sup>8</sup> Calculated by Tom Berglund in the Department of Finance and Statistics at the Hanken School of Economics.

Monthly rates derived from the Bank of Finland's base rate are used to build risk-free rate from 1917 to December 1986. From January 1987 to December 1998 one month Helibor rate and thereafter one month Euribor rate are used for the risk-free rate. Risk-free rate is lagged for one month and logarithmic value is used in calculations.

Monthly Cost of Living index proxies inflation rate and is acquired by combining data from Research Office of the Ministry for Social Affairs, Bank of Finland, Statistics Finland.<sup>9</sup> The data comprises years from 1917 to 2007 and is presented in logarithmic form.

Tilastokeskus<sup>10</sup> has yearly GDP volume growth statistics from 1917 to 1975. From 1975 on the GDP growth statistics are compiled on quarterly bases. Yearly observations are converted to monthly values by following the methods of Vaihekoski and Nyberg (2013).

#### 4.1.2 Calculation of the financial variables

The statistical analysis is conducted with excess (index – risk-free rate) and real (index – inflation) returns to abstract the effect of monetary policy and inflation from results since Hensel and Ziemba (1995), Beyer et al. (2004), Chittenden et al. (1999), and Santa-Clara and Valkanov (2003) have showed that they differ under left and right-wing party policies. To examine the volatility difference between left-right wing governments with Finnish data I calculate the yearly volatility from within monthly returns of value-weighted excess returns. Historical values for all return indexes and real interest rate are shown in Appendix D. Computed financial variables are shown below:

Value-weighted excess return ( $VWER_t$ ) = (ln monthly value-weighted total return) – (ln monthly risk-free interest rate)

Value-weighted real return ( $VWRR_t$ ) = (ln value-weighted monthly total return) – (ln monthly inflation rate)

Equal-weighted excess return ( $EWER_t$ ) = (ln monthly equal-weighted total return) – (ln monthly risk-free interest rate)

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<sup>9</sup> For more information about indexes, risk-free rate and inflation rate, see Nyberg, P., Vaihekoski, M., 2010. A new value-weighted total return index for the Finnish stock market. *Research in International Business and Finance*, 2010, Vol. 24, No. 3, 267-283

<sup>10</sup> GDP growth, Tilastokeskus. 11.7.2013. [https://www.tilastokeskus.fi/til/vtp/2012/vtp\\_2012\\_2013-07-11\\_tie\\_001\\_fi.html](https://www.tilastokeskus.fi/til/vtp/2012/vtp_2012_2013-07-11_tie_001_fi.html) (accessed 23.9.2013)

Equal-weighted real return ( $EWRR_t$ ) = (ln equal-weighted monthly total return) – (ln monthly inflation rate)

Real interest rate ( $RIR_t$ ) = (ln Risk-free monthly interest rate) – (ln monthly inflation)

Volatility of VWR ( $VOL_t$ ) = yearly volatility of value-weighted return from monthly values

**Table 1: Summary statistics of the financial variables**

This table reports sample averages (Mean) and standard deviation (Std.Dev) for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return indexes, and real interest rate return (RIR). The table presents all monthly observations and therefore includes also caretaker governments. The results are presented separately for both sub-periods. All returns are computed as logarithmic values and presented in annualized percentage points.

	1917-2009 (1106 obs)		1917-1986 (830 obs)		1987 - 2009 (276 obs)	
	Mean	Std.Dev	Mean	Std.Dev	Mean	Std.Dev
VWER	6,06	20,91	6,56	17,79	4,57	28,35
VWRR	5,74	21,36	4,92	18,50	8,23	28,29
EWER	9,89	16,37	10,66	14,47	7,56	21,10
EWRR	9,57	17,08	9,02	15,53	11,22	21,08
RIR	-0,32	7,10	-1,64	8,12	3,66	1,39

As shown in Table 1 above, the equal weighted indexes have higher returns on average than the value weighted indexes. This is an expected result, since the equal weighted index gives more emphasis to firms with smaller market capitalization and Fama and French (1993) find that smaller firms have higher returns when using small firm effect as a control variable in their Three Factor Model. Due to the lower diversification and higher weights in single companies the value weighted indexes are also more volatile than the equal weighted indexes. These results are valid for the whole sample period and also to both subsample periods separately.

The two subsample periods differ from each other in some ways. The latter period is dominated by more predictable interest rate and lower inflation because Finland first joined EMU (The Economic and Monetary Union) and later the Euro. During the former period real interest rate is actually negative and highly volatile because of inflation. Development of the interest rate and inflation is shown in appendix E.

All four return indexes are more volatile during the latter period. Schwert (1989) find that stock market volatility is greater during macroeconomic turmoil and economic uncertainty. Additionally, Bekaert and Harvey (1997) show that capital market liberalization increases the correlation between

local stock markets and other stock markets. Although, Bekaert and Harvey also state that the increased correlation does not necessarily increase the local market volatility, the Helsinki Stock Market (OMX) volatility might have increased due to the crisis in early 2000's (tech bubble, financial crises) in international stock markets. Therefore, plausible explanations for greater volatility in the latter period might be a greater exposure to the international crisis and increased proportion of foreign ownership, increased volumes in stock exchange and emerging of derivative markets.

Because of the high inflation (negative real interest rates) during the former period, the real returns are smaller than the excess returns in the subsample from 1917 to 1986. During the latter period the real interest rates are higher and correspondingly the real returns are greater than the excess returns.

#### 4.1.3 Motivation for the political variable

In this Section I will explain the motivation for creating a political variable in the next Section and also argue why the political variable is relevant during my whole sample period. Next I will go through some relevant background which must be considered when building the political variable.

Similarly to the US political system, other countries have two-party systems where parties can mainly be differentiated in relation to their position on the left - right axis<sup>11</sup>. The division (and names 'left wing' and right wing') was first established in France from where it made its way to England and eventually to the US. Bohl and Gottschalk (2006) expanded this research to other countries, some of which do not have a two-party system. In systems that have coalition governments it can be hard to measure in left – right wing –axis but classification from Alt (1985) and Banks and Muller (1998) have been used to negate this problem in previous literature.

In Finland, governments formed under a Prime Minister legislate economic laws and therefore governmental variable present an ideal variable to observe, instead of the presidential variable used in the US<sup>12</sup>.

In the Finnish multi-party system there is a well-accepted understanding of some parties belonging to left-wing coalitions, e.g. Left Alliance [LA] and Social Democratic Party [SDP], and others that are can be defined as right wing parties, e.g. National Coalition Party [NCP] and Svenska folkpartiet I Finland [SFP]). The classification of central parties is somewhat more controversial but Green League, True Finns, Finnish Christian Union and Centre party are all central parties. To verify the

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<sup>11</sup>

<sup>12</sup> <http://www.finlex.fi/fi/laki/ajantasa/1999/19990731#L5P61>

common understanding of left-wing axis in Finland the reader can cite e.g. Jussila, Hentilä and Nevakivi (2006) or Mickelson (2007).

Borg and Paloheimo (2009) build a left-right wing variable ("leftist variable" henceforward) and approximate how leftist parties are. Borg and Paloheimo's results are consistent with the aforementioned studies Jussila, Hentilä and Nevakivi (2006) and Mickelson (2007).

Jussi Westinen's (2011) studies parties statistically in the left-right axis during 1991-2007 elections by using questionnaire data from voters. He finds no major changing between the most leftist and rightest parties during the study period. Neither did he find that parties would have gone closer to the political centre.

Whereas Westinen shows the relative stationary from the 1990's until today, we can further extend the time period by examining Niskanen's (2008) results. Niskanen studies primarily social classes but his work can be used to understand how parties have changed related to each other over time. Niskanen divides Finland into four different social class categories: upper class, middle class, farmers and working class. He studies the actual bills that parties have introduced between the years 1966 and 1999. Most of the bills benefit all of the social classes but some of them benefit only a single class. Niskanen determines who the benefactors of these bills are and which social classes they are representing. Using this logic, he is able to categorize how much each party is promoting different social classes. Niskanen also draws the universal conclusion between upper class right-wing politics, and workers and left-wing politics. Therefore, we can see how parties are situated in left-right wing axis compared to each other by examining their legislative initiatives. But even more importantly, since the data includes over thirty years, we are able to see if parties have moved in the left-right wing axis over a long period of time. This is essential for my study, since parties are evaluated over time on basis of quite recent data.

Niskanen (2008) notes that even though parties are now less focused on representing just one social class compared to the 1960's, there was still an ideological distinction between the parties in turn of the millennium. Niskanen finds that SDP and Left Alliance are promoting workers cause, Green League and True Finns are somewhat leftist, and Christian Union and Centre Party in a lesser manner as well. The least leftist according to how much they have supported working class are Liberals, SFP and NCP. In absolute terms, he finds that parties have moved slightly towards right-wing values. Niskanen states that the major reason for political changes within parties actually lies in society; as structure of work force has changed, parties have had to redefine their ideology to appeal to larger

numbers of people. In general, Niskanen's findings support the theory of parties being rather stationary compared to each other over time when studied how leftist their politics are.

Another view to political change over time is provided by Pesonen, Sänkiahö and Borg (1993). They have studied voters' positioning in the left-right wing axis in 1975, 1983 and 1991. The order of voters in the axis was consistent with Westinen's results when comparing parties to each other. A notable finding was that while the order of parties respective to each other did not change, most of the voters, including voters of SDP and Centre Party, were moving towards the right wing, with an exception of NCP's voters that drifted slightly left towards the middle.

Adversely to Niskanen (2008) who studies actual decisions made by parties, Borg (1964) examines statistically ideological differences between parties by using multivariate analysis to study their political platforms. He finds that at the time of the study left-right wing governments could be divided into four different clusters in Finland. The rightest parties (and close to each other) were NCP and SFP, the second cluster in the middle were Liberals and predecessor of Centre Party, the third cluster in their left side SDP by itself, and the last cluster was made by predecessors of Left Alliance.

Borg's categorization is done according to economic the view of parties but as he notes, the results are related to the questions asked and the same is true with the other studies. Therefore, it is important to mention that the results from different studies are not commensurate with each other. Thus, even though the results are in line with each other, I use the results to validate my study methods as opposite of using political variable that changes over time.

Finally, Jussila, Hentilä and Nevakivi (2006) state that the division in the left-right -axis has been in effect ever since the emancipation of Finland. In the Finnish Civil war which followed the declaration of the independence, left-wing parties (LA,SDP) were fighting for socialist ideology and were not allowed participate to the politics for few years. Therefore the first governments in the early 1920's were formed exclusively by right-wing parties by that time's standards. As stated rather conclusively above, the corresponding parties are considered to maintain their status in left-right -axis ever since.

To conclude, it is not in the scope of this study to go through different phases in Finnish history in detail and evaluate them to try to obtain exact leftist state of each party at every given moment but to validate use of my leftist variable to the reader. Nevertheless, to further validate my method, I also look for verbal remarks given to different governments by Jussila, Hentilä and Nevakivi (2006) in comparison to the calculated leftist value for each government. Comments are found for fifty governments and they are mostly well aligned with the results obtained by the leftist variable, thus

supporting my method. See appendix C for the exact values and verbal remarks given to each government.

#### 4.1.4 The leftist variable

In this part I will discuss in more detail how the leftist variable is constructed. To estimate how leftist parties are I have used four analyzes based on data publicly available from several voting aid applications that are provided by the Finnish media<sup>13</sup>. By combining data from opinions of individual candidates, each analysis calculates a singular value for the whole party. These results cover different elections from 2007 to 2011 and they are presented in more detail in the next section.

In addition to data based on voting applications, I will use two other sources to define how leftist parties are. Firstly, I use Parliament and Government Composition Database's estimates of Finnish political parties. Secondly, I track in which European Parliament group Finnish parties are part of and use McElroy and Benoit (2007) assessment of those groups as a reference.

To come up with the final leftist value for each party, I will calculate an arithmetic average for each party by using the aforementioned six datasets. The original results from datasets are scaled to a scale from 0 to 10 where 10 represents left-wing extremist and 0 right-wing extremist.

Expanding further and to decide how leftist each government is, I have tracked individual ministers of sixty-two governments in the sample<sup>14</sup>. According to which party the minister is representing, each minister is given the leftist value of their party. These values are equal-weighted and multiplied by the number of the seats that parties control in the government in concern to calculate a leftist value for the whole government. As an alternate method, I have also calculated the leftist value for each government using the method described above but instead of using minister spots as the weighing method, I use the amount of seats that the governing parties hold in the parliament as the weighing method. Both methods produce similar results where the same governments are found to have similar values and therefore I will henceforward only show the results of the method using minister spots as the weighing method<sup>15</sup>.

I acknowledge the representativeness limitation of using aggregated individual data to evaluate each party and then using the party values to evaluate individual ministers in governments. This is

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<sup>13</sup> Helsingin Sanomat, Yleisradio and MTV3 are the most notable ones.

<sup>14</sup> The sample size is 70 governments but eight of those were led by politically independent public servants. Therefore, I am left with 62 governments that are given a leftist value.

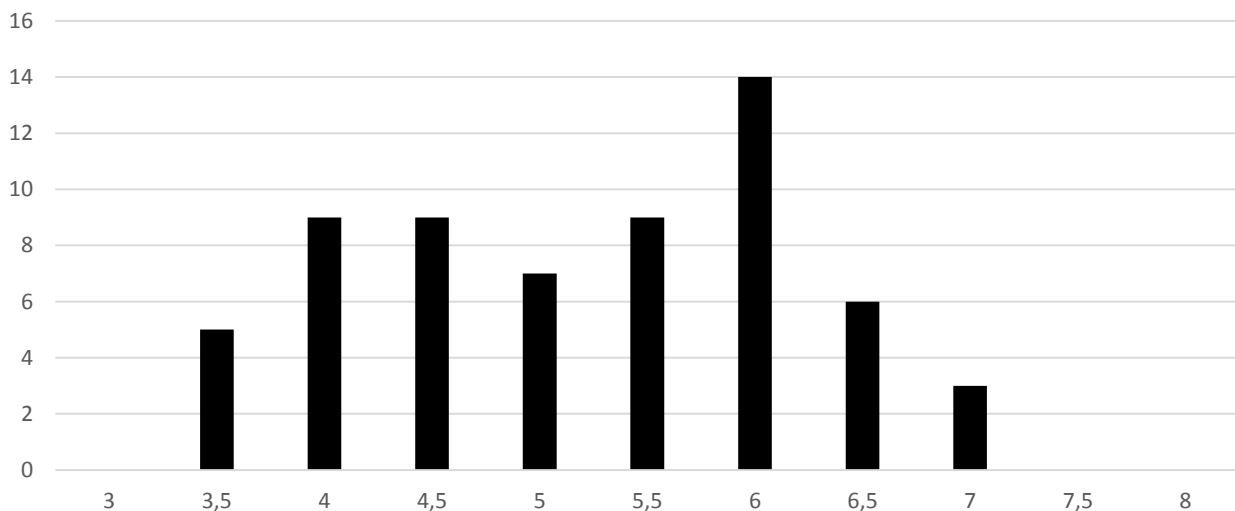
<sup>15</sup> For the sake of robustness, the OLS regression is also ran using seats held in parliament by government parties. The results are not reported here but are similar to the results obtained using the primary method.

especially troublesome since each party's leftist value is expanded over time to cover a time period of ninety years. Nevertheless, the use of a single party value to represent a party over time has been covered in the last sections. Additionally, when the leftist value for parties is calculated, voting application data is based on opinions of individual representatives. Therefore, even though my leftist variable for each government is an approximation, it is well justified compared to using binary data in previous studies.

The following graph shows how sixty-two governments are distributed in the leftist axis. To enable univariate analysis, I have opted for treating all governments that receive leftist value above "5,0" as a leftist governments. The motivation behind the arbitrary allocation is the usual structure of the Finnish governments. A government has usually been formed by the biggest party in cooperation with one of the other major parties; which in this context means SDP, Centre or NCP (or one of its predecessors). As showed in table 2, Centre party is valued at 4,9 in the leftist axis. Borg and Paloheimo (2009) among other sources in previous discussion state that Centre is a conservative centre-right party and therefore the Centre's position in the leftist axis creates a natural pivot point. Following these lines the governments tend to be rightest if they are formed by Centre and NCP, and leftist if formed by Centre and SDP which reflects well the verbal comments on different parties by Jussila, Hentilä and Nevakivi (2006). Additionally, using this division method makes up thirty-three leftist governments and twenty-nine rightest governments, which makes up a good date set for binary analysis for comparing leftist and rightest governments.

### **Figure 1. Distribution of Governments in the leftist axis**

The figure reports sixty-two governments distributed according to their leftist value. The governments are grouped by rounding the leftist value to the closest 0,5 and each column present number of governments in that group. The caretaker governments that do not have a leftist value are excluded from the data.





#### 4.1.5 Political data sets for the leftist variable calculations

The following section presents in more detail the studies that I use to calculate the leftist value for each party.

The Borg and Paloheimo (2007) implement Anderson-Rubin factory analysis when evaluating how leftist each party was in 2007 parliament election<sup>16</sup>. The sample includes 196 newly elected members of the parliament and the results are scaled.

Similarly to Borg and Paloheimo, Juha Törmänen uses factory analyses<sup>17</sup> to analyze candidates in 2011 parliament elections. I have calculated party averages and scaled the results. Törmänen's sample includes 1703 Member of Parliament candidates.

Mäkinen, Ylä-Anttila and Kemppainen<sup>18</sup> have analyzed 2011 parliament election and 2012 municipal election by using arithmetic mean of left-right wing questions to determine a leftist variable for each candidate. The 2011 elections sample includes 180 elected members of parliament and the 2012 election 4480 municipal candidates. I have calculated arithmetic means for each party from the individual observations of members of Parliament and scaled the results.

McElroy and Benoit (2007) evaluate the European Parliament political party groups on a quantitative left-right dimension. I have given Finnish parties the value of corresponding European Parliament party that they are part of as 2014 and scaled the results.

ParlGov.Org<sup>19</sup> calculates left-right dimension to Finnish political parties by citing four papers (Castles and Mair, 1983; Huber and Inglehart, 1995; Benoit and Laver, 2006; Chapel Hill expert survey series, 1999, 2002, 2006). The result is a time-invariant unweighted mean for each party that I have scaled.

For illustrative purposes the results from Jussi Westinen's (2011) are shown in appendix A. Westinen's results are from public questionnaires and they reflect voters' opinions about parties, as opposite of politicians' own opinions. Therefore, Westinen's outcomes are excluded from leftist variable.

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<sup>16</sup> Yleisradio vaalikone –results. <http://blogit.yle.fi/kehitys-kehitty/ylen-vuoden-2007-vaalikoneen-tiedot-avoimena-datana>

<sup>17</sup> Törmänen uses Helsingin Sanomat Vaalikone –data. More information about the methods from:.

<sup>18</sup> Mäkinen is a journalist at Helsingin Sanomat and they use data from Helsingin Sanomat Vaalikone. <http://blogit.hs.fi/hsnext/vaalikoneen-arvokartan-taustatiedot-avoimena-datana>

<sup>19</sup> ParlGov.org is a project started at Max Planck Institute for the Study of Societies. It aims to create a database that systematically combines information on party positions, election results and government compositions.

**Table 2: Summary of the leftist variables**

This table presents the leftist value (variable) for each party and how it is derived from different sources. The leftist value is an unweighted arithmetic mean of point estimates from different elections. \*ParlGov estimate is and unweighted mean of their references (Castles and Mair (1983), Huber and Inglehart (1995), Benoit and Laver (2006), Irgen (1999,2002,2006))

Party	Borg and Paloheimo, 2007 parliament elections	Mäkinen, 2011 parliament elections	Törmänen, 2011 parliament elections	Mäkinen, 2012 municipal elections	McElroy and Benoit, 2013 European parliament group	ParlGov estimate, 2013*	The leftist variable
LA	7,4	9,7	7,4	8,8	8,6	7,7	8,3
SDP	6,6	9,4	6,2	7,8	6,6	6,4	7,2
Finns	6,0	7,6	5,4	6,3		3,4	5,7
Green	5,8	6,2	6,3	7,2	7,8	6,4	6,6
Christ.	5,8	5,8	5,6	6,1	3,9	2,8	5,0
Centre	5,2	4,5	5,2	6,0	4,3	4,2	4,9
SFP	4,2	5,4	4,6	5,6	4,3	3,6	4,6
NCP	2,2	3,4	3,6	4,0	3,9	2,8	3,3

#### 4.2 Methodology

In this section I will discuss the methodology of this study. Each paragraph includes a small review of the particular methodology, the motivation behind that methodology and discussion on its possible drawbacks. My methods will mostly follow the structure set by Santa-Clara and Valkanov (2003).

In addition to methods shown in the next sections, I will also conduct a simple univariate analysis to review general trends in results. The use of univariate and regression analysis has been the norm in past research on presidential cycles and stock returns and is therefore well justifiable<sup>20</sup>.

A relevant issue to mention is the use of business cycle control variables. Variations in stock returns have been associated with business cycle fluctuation and business cycle fluctuations with political variables (Alesina et al. (2007), Drazen (2000)). Therefore, it might be that the correlation between stock returns and political variable is actually only due to business cycles depending on political variable.

In previous literature Santa-Clara and Valkanov (2003) test for this by running a regression while controlling variables that are known to be depended on the business cycle and simultaneously effecting stock returns. Often used control variables are dividend-price-ratio, the term spread between yield to maturity of a ten-year treasury note and the three-month treasury bill, the default spread between yields of BAA and AAA-rated bonds and the relative interest rate computed as the deviation

<sup>20</sup> See e.g. Sy and Zaman (2011), Powel et al. (2007), Stangl and Jacobsen (2007), Bohl and Gottschalk (2006), Campbell and Li (2004), and Santa-Clara and Valkanov (2003).

of the three-month treasury bill from its one-year moving average. As other studies do not emphasize the importance of business cycle -proxy effect and the majority of these control variables are not available for my specific data set, I have opted to conduct this test in an alternative way. I have used log of Finnish GDP growth as a control variable when running the regressions. I find that GDP growth has no statistical significance when available yearly values are used as control variables. This is somewhat similar to finding of Santa-Clara and Valkanov (2003) who find that business cycle variations are mostly uncorrelated with changes in stock returns caused by presidential cycles. Regardless, it is worthwhile to mention that Liljeblom and Stenius (1997) present that in Finland up to two-thirds of stock market volatility can be related to macroeconomic volatility.

Finally, there is strong evidence supporting the “January effect” for small firms (Park and Moskalev, 2010). Although, Wahlroos and Berglund find significant evidence supporting January effect in Finland, Hensel and Ziemba (1995) find Democratic premiums not to be driven by January effect in the US. Additionally, as Finnish governments have often not reigned a full four-year term it would be more challenging to get robust results. Aforementioned things considered, I opt not to test for January effect with my data

#### 4.2.1 OLS estimation

The first regression I conduct is the OLS regression that is used in a majority of research papers studying the presidential puzzle. Therefore, to test the dependence between monthly returns and the leftist variable I will run following linear regression:

$$r_{t+1} = \alpha + \beta\pi_t + \varepsilon_{t+1}$$

where dependent variable  $r_{t+1}$  are the monthly returns and independent variable  $\pi_t$  the leftist variable getting values from 0 to 10, 0 being non-leftist and ten being leftist. The null hypothesis is that there is no detectable effect between monthly returns and political cycles and therefore the coefficient  $\beta$  should be 0. The regression is applied to all financial variables stated in the data section. The use of lagged variables can be justified by the fact that the political variable needs to be known at the beginning of the monthly return period for the effect to be fully perceptible (Santa-Clara and Valkanov, 2003).

As mentioned earlier my data includes a single index instead of multiple indexes for different size deciles. Therefore, I am not able follow Santa-Clara and Valkanov (2003) and Sy and Zaman (2011)

and test my hypothesis for different size details using regression modified after CAPM or TFPM. For more discussions on this matter see discussion Section 1.4.

Another noteworthy difference to discuss between my study and US studies are the moments that the information is actually perceived. In the US system the  $t_0$  equals to the moment where investors became aware of the next president. In Finnish multi-party system investors will know the biggest party in the election day which is often a month or so before the formation of the new government. Therefore, it could be argued that the actual  $t_0$  should be the month before the constitution of the government. To address this possible problem I have applied regression without the  $r_{t+1}$  lagging. The results do not differ drastically from the results that are obtained with lagging the returns by one month. As the problem is rather speculative, I will use methods similar to earlier studies and lag returns by one month. Nevertheless, to further shed light on the issue I will study the returns around the government formation months in Section 5.4 covering the election shocks.

All regressions are run by using StataSE 12.

#### 4.2.2 GARCH regression

Schwert and Sequin (1990) studied the heteroskedasticity of stock returns. They noted that often the variance of aggregate stock returns changes over time and proposed the use of GARCH (general autoregressive conditional heteroskedasticity –regression) for stock returns. Campbell and Li (2004) have contributed to the presidential dummy research by noting that OLS, WLS (weighted least square) and GARCH estimates give different results and find that this is due to excess stock returns during periods of elevated market volatility.

I have tested the OLS regression residuals for value-weighted excess return –index and find them autocorrelated<sup>21</sup>. Therefore, due to my findings and earlier literature by Campbell and Li (2004) I will proceed to conduct a GARCH regression similar to OLS estimates. Following Lanne, Meitz and Saikkonen (2012) I will use student's t-distribution, instead of Gaussian distribution in GARCH model because of high kurtosis of the distribution of the stock returns. I have used the GARCH (1,1) regression as follows:

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<sup>21</sup> Sample autocorrelation with different lags are significant compared to their standard deviation.

$$r_{t+1} = \alpha + \beta \pi_t + \varepsilon_{t+1}$$

where  $\varepsilon_{t+1} = \gamma_{t+1} h_{t+1}$  and  $h_{t+1} = \sqrt{\alpha_0 + \alpha_1 * \mu_t^2 + \delta_1 * h_t^2}$

where  $h_{t+1}^2$  is conditional variance of  $r_{t+1}$ ,  $\gamma_{t+1}$  is independent t-distributed variable with variance scaled to one. The model is estimated using maximum likelihood methods.

#### 4.2.3 Expected vs. unexpected returns

To test if the excess returns related to the leftist variable are expected (as opposed to unexpected returns), I am following Santa-Clara and Valkanov (2003) and testing for election shock explanations.

In case that the excess returns related to the leftist variable are expected and foreseen by the investors, there should be a distinguishable difference in returns and volatility around the announcement of a new government (Santa-Clara and Valkanov, 2003). To test this theory, I will complete a univariate analysis comparing data points around elections to the rest of the data. Additionally, I will run OLS regression using the months around the formation of the government as a dummy variable to see if the results are statistically significant. I will also run regressions separately for left and right-wing governments to see if stock market reacts differently to elections shock under different governments. The results from the univariate analyses will be used to decide the exact months that are used within the dummy variable.

The deficiency of this test is the use of monthly return index, whereupon I will not be able to observe differences on normally used daily level or in minute level as done by Snowberg, Wolfers and Zitzewitz (2007). The use of monthly return index makes it harder to isolate changes that are caused by political events.

#### 4.2.4 Leftist risk premium

As discussed in the literature review, there are several possible explanations to why there seems to be a perceivable Democratic premium. Sy and Zaman (2011) conclude that the excess premium seems to exist because there is an additional risk premium involved, especially for small companies, under the left-wing government. That is, the beta ( $\beta$ ) increases for smallest size deciles under left-wing governments even though market riskiness is a same for left and right-wing governments alike in whole. This explanation would be consisted with the observations that the smallest size deciles show greatest excess returns due to the political variable.

As a drawback, I am not able to fully test this due to the lack of size decile indexes. Nevertheless, I will run a regression on monthly volatility<sup>22</sup> of returns to see the effect of the leftist variable. Regression is as follows:

$$VOL_t = \alpha + \beta\pi_t + \varepsilon_t$$

where  $\pi_t$  is the leftist variable and  $\beta$  coefficient between volatility of returns and leftist variable. The null hypothesis is that the volatility should be independent from the leftist variable and there is a zero coefficient. In order to make the results more robust, I will run the regression against all return indexes described in the financial data section and separately for the two subsample periods defined before. All returns are lagged for one month.

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<sup>22</sup> One year moving average computed from within monthly returns

## 5. Empirical results

In this section the empirical results will be discussed. I will scrutinize the association between leftist variable and stock returns while controlling risk free interest rate and inflation. The results section is divided into four different sub sections. First, I will show the results of univariate analysis in Section 5.1, and then move to results of the OLS regression in Section 5.2 and GARCH results in Section 5.3. Thereafter, in Section 5.4, I will conduct a test to find out if the possible excess returns related to leftist variable are expected or unexpected by their nature. Finally, in Section 5.5 I will scrutinize the volatility of the returns under left and right-wing regimes.

### 5.1 Univariate analysis

When using the binary distribution to divide regimes to left and right-wing governments, univariate analyses gives a solid overview on differences between left and right-wing governments. Under the left-wing governments the average stock returns have been higher but the returns are somewhat diminished by higher inflation.

The results of univariate analyses are presented in Table 3. The average returns are shown separately for left and right-wing governments and for the full data sample and subsamples alike. Below the returns are presented standard deviations for corresponding returns.

**Table 3: Univariate analysis of the average returns under the left and right-wing governments**

The table presents univariate analysis of average returns for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes, and real interest rate (RIR) portfolio. The governments are divided to left and right-wing governments by the binary leftist variable and the results are reported separately for both groups. The sample includes all 62 governments (1068 monthly observations) that have leftist value and the results are shown separately for both sub-periods and the whole period alike. Standard deviations are shown in smaller print below the return indexes for all variables. The results are shown separately for left and right-wing governments and the right-side column under each sample period reports the difference between the governments (left - right). All returns are computed as logarithmic values and presented in annualized percentage points.

	1917-2009 (1068 obs)			1917-1986 (792 obs)			1987 - 2009 (275 obs)		
	<i>Left (663 obs)</i>	<i>Right (405 obs)</i>	<i>Diff</i>	<i>Left (468 obs)</i>	<i>Right (324obs)</i>	<i>Diff</i>	<i>Left (195 obs)</i>	<i>Right (81obs)</i>	<i>Diff</i>
VWER	8,82	1,39	7,44	8,70	3,34	5,35	9,14	-6,44	15,57
	22,82	18,18		20,20	14,43		28,19	28,65	
VWRR	6,95	3,42	3,53	4,79	4,57	0,22	12,14	-1,18	13,31
	22,86	19,46		20,26	16,45		28,16	28,59	
EWER	12,28	6,11	6,17	12,96	7,61	5,35	10,65	0,12	10,54
	16,37	16,81		15,97	12,48		17,34	28,18	
EWRR	10,40	8,14	2,26	9,05	8,84	0,21	13,65	5,38	8,27
	16,40	18,59		16,00	15,34		17,33	28,19	
INFL	8,32	5,16	3,16	10,74	6,02	4,72	2,51	1,70	0,81
	5,44	9,79		6,30	10,92		1,22	1,11	
RIR	-1,88	2,03	-3,91	-3,91	1,22	-5,13	3,00	5,26	-2,26
	5,23	9,55		6,07	10,63		1,26	1,57	

The excess returns of value-weighted index over the risk-free rate is 8,82% for left-wing governments and only 1,39% for right-wing governments, equaling 7,44 percentage point difference for left-wing governments. Comparable excess return difference for the equal-weighted index is a little less, 6,17 percentage points. Similarly, in subsamples the left-wing regimes have higher returns, albeit the latter subsample is rather unreliable due to small number of observations and high variance. The results obtained from the real returns indexes are consistent with the excess return results as leftist governments induce greater returns. Nevertheless, the difference is far lesser especially during the 1917-1986 period.

Related to the aforementioned smaller difference in real returns is a notable perception that left-wing governments seem to induce a higher inflation to the economy. The real interest rate was on average negative under leftist governments. The difference between the governments was especially large during the former subsample when high inflation caused the real interest rate to be 5,17 percentage points lower for leftist governments compared to rightest governments. The higher inflation for left-wing governments is in line with the results obtained in the U.S that associate high inflation and



Democratic governments because of their tendency to favor expansive policies (Gerler and Gilchrist, 1994). Nevertheless, as opposed to what Santa-Clara and Valkanov (2003) find, the returns seem to be somewhat more volatile under leftist governments. I will further study this in Section 5.4.

## 5.2 OLS regression

This section is divided into two separate parts. I will first conduct regression using the binary leftist variable<sup>23</sup> as a dependent variable to explain financial variables. Thereafter, I will use the true leftist variable to explain stock returns. Both methods have their own strengths. By using the binary method I am able to comparable results with univariate analyses and make a more traditional distinction between left and right-wing regimes, which has been a purpose of previous studies. On the other hand, by using the leftist variable I am hopefully able to achieve more reliable results and insights.

### 5.2.1 The binary variable

Table 4 presents the results of OLS binary regression<sup>24</sup>. Point estimates for left and right-wing governments are shown for the full time period and for two subsamples. Below the point estimates are shown the corresponding confidence levels.

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<sup>23</sup> Explained in Section 4.1.3

<sup>24</sup> The binary left-right wing variable is created according to government composition

**Table 4: The average returns under the left and right-wing governments (OLS binary regression)**

The table presents the mean returns for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes, and real interest rate return (RIR) portfolio. The returns reported separately for the whole sample period and both sub-sample periods separately. The mean returns are from the following OLS regression  $r(t+1) = \alpha + \beta D_t + \varepsilon(t+1)$  where the binary leftist value is a dummy variable  $D_t$  that gets a value of 1 during the left-wing governments' incumbencies and otherwise a value of 0. The coefficient  $\beta$  denotes the difference in mean returns for the left and the right-wing governments' incumbencies and the constant  $\alpha$  presents the returns during the right-wing governments' incumbencies. For illustrative purposes the mean returns for the left-wing governments are calculated under the left column for each sample period by adding the difference to the right wing value. All returns are lagged for one month and computed as logarithmic values and presented in annualized percentage points. \*\*\*, \*\*, \* denote statistical significance at 1%, 5% and 10% levels respectively.

	1917-2009 (1067 obs)			1917-1986 (792 obs)			1987 - 2009 (275 obs)		
	<i>Left wing, 663 obs</i>	$\alpha$ ( <i>Right wing</i> ), 405 obs	$\beta$ ( <i>Difference</i> )	<i>Left wing, 468 obs</i>	$\alpha$ ( <i>Right wing</i> ), 324 obs	$\beta$ ( <i>Difference</i> )	<i>Left wing, 195 obs</i>	$\alpha$ ( <i>Right wing</i> ), 80 obs	$\beta$ ( <i>Difference</i> )
VWER	8,78	1,27	7,51	9,06	2,76	6,29	8,11	-4,78	12,90
VWRR	7,01	3,43	3,58	5,29	4,16	1,13	11,14	0,47	10,67
EWER	12,15	6,15 **	6,00 *	12,97	7,45 ***	5,51	10,18	0,86	9,33
EWRR	10,38	8,31 ***	2,07	9,20	8,86 ***	0,35	13,21	6,11	7,09
RIR	-1,77	2,17 *	-3,93 ***	-3,76	1,40	-5,17 **	3,02	5,26 ***	-2,23 ***

$r_{t+1} = \alpha + \beta D_t + \mu_{t+1}$ , where  $D_t$  is leftist dummy. Running a regression by using binary leftist value doesn't provide reliable results. With exception of RIR (real risk-free interest rates), none of the returns are significant within the 5% level. Nevertheless, value-weighted and equal-weighted excess returns are both close within the 10% level for leftist regimes. Results for the real return indexes are not significant but all results are in line with the univariate results that leftist regimes are associated with higher excess returns and this conclusion holds true for both subsamples and all return indexes simultaneously.

Real risk-free interest rate (risk-free rate – inflation) has been lower for the leftist governments in all samples and the results are significant at the 1% level. This is due to the higher inflation under leftist regimes<sup>25</sup>. Across all the regression results I find that real returns (index – inflation) are less

<sup>25</sup> See univariate analysis

significant than excess returns (index – risk-free rate) due to the high inflation under left wing governments.

#### 5.2.2 The freely varying leftist variable

The results of the second OLS regression<sup>26</sup> are presented in Table 5 for both the full sample period and the two subsamples. Point estimate  $\beta$  refers to abnormal return of leftist variable. The low value of  $R^2$  is caused by the political variable that can persist unchanged up to forty-eight-months whereas returns change on monthly bases. Therefore, low  $R^2$  should not be used as such to disregard the results.

**Table 5: The average difference in returns under the left and right wing governments (OLS leftist variable regression)**

This table presents the mean returns for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes, and real interest rate return (RIR) portfolio. The mean returns are from the following OLS regression  $r(t+1) = \alpha + \beta Dt + \varepsilon(t+1)$  where the freely varying leftist variable is an explanatory variable  $Dt$  and the constant  $\alpha$  denotes the mean returns for the fully right wing governments. The coefficient  $\beta$  represents the difference per one leftist unit compared to  $\alpha$ , i.e. how much increase or decrease of one leftist unit changes the expected returns of a government compared to the fully right wing governments.  $R^2$  presents the explanatory power of the regression. All returns are lagged for one month and computed as logarithmic values and presented in annualized percentage points. \*\*\*, \*\*, \* denote statistical significance at 1%, 5% and 10% levels respectively.

	1917-2009 (1067 obs)			1917-1986 (792 obs)			1987 - 2009 (275 obs)		
	$\beta$ (Leftist)	$\alpha$ (Completely rightest)	$R^2$	$\beta$ (Leftist)	$\alpha$ (Completely rightest)	$R^2$	$\beta$ (Leftist)	$\alpha$ (Completely rightest)	$R^2$
VWER	4,99 **	-20,85	0,004	3,62 *	-13,04	0,004	15,15	-75,78	0,009
VWRR	3,16	-11,32	0,002	1,98	-5,86	0,001	12,83	-59,86	0,007
EWER	4,08 **	-12,02	0,004	2,96 *	-5,23	0,004	12,12 *	-56,66	0,011
EWRR	2,25	-2,48	0,001	1,32	1,96	0,001	9,81	-40,73	0,007
RIR	-1,83 **	9,54 **	0,005	-1,64 *	7,18	0,004	-2,32 ***	15,92 ***	0,091

$r_{t+1} = \alpha + \beta \pi_t + \varepsilon_{t+1}$ , where  $\pi_t$  is leftist variable. My leftist variable does not include data points smaller than value three and therefore the absolute value for constant  $\alpha$  does not represent a meaningful value for an extremely right wing government. Therefore, it is not feasible to hypothesize that if Finland had a fully rightist government, a government with a leftist value of zero, it would on

<sup>26</sup> Regression uses leftist variable varying between zero and ten as an independent variable

average have e.g. value-weighted excess return of -20% annually. Nevertheless, value-weighted and equal-weighted excess returns are statistically significant for point estimate  $\beta$  and show that within my ninety year sample there are statistically significant excess returns associated with leftist governments. Even though results of the subsamples are non-significant, similar to the results of Santa-Clara and Valkanov (2003), the leftist variable receives positive coefficient in all of my return indexes.

Value-weighted excess return and equal-weighted excess return indexes have point estimates of 4,99% and 4,04% at the 5% level, meaning that transition of one unit in leftist variable increases estimated returns by four to five percentage points. The difference in excess returns is especially notable during the latter subsample, where the point estimate are three to four times higher than during the former subsample. This could be due to crises that have shaken the country during right wing governments' reign, like the depression of early 1990's which hit during Esko Aho's government. This also leads to a question of possible causality; are the right wing governments elected to power during tough economic times. For more discussion on the matter see the conclusions.

Similar to the other results obtained in Sections 5.1 and 5.2, point estimate  $\beta$ s in OLS regression model show that the results are less significant for real returns compared to excess returns.

### 5.3 GARCH regression

#### 5.3.1 The binary variable

Another approach to examine data by regression is to use the GARCH model. As I debate in the methodology, the indexes are suffering from heteroskedasticity and therefore the GARCH model, which allows residual's variance to alternate (Hayashi, 2000), is used for studying the Finnish stock market. The following Table 6 uses binary leftist value and shows coefficients, difference in coefficients, and confidence levels for the coefficients.

**Table 6: The average returns under the left and right-wing governments (GARCH binary regression)**

The table presents the mean returns for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes, and real interest rate return (RIR) portfolio. The returns reported separately for the whole sample period and both sub-sample periods separately. The mean returns are from the following GARCH regression  $r(t+1) = \alpha + \beta Dt + \varepsilon(t+1)$  where the binary leftist value is a dummy variable  $Dt$  that gets a value of 1 during the left-wing governments' incumbencies and otherwise a value of 0. The coefficient  $\beta$  denotes the difference in mean returns for the left and the right-wing governments incumbencies and the constant  $\alpha$  presents the returns during the right-wing governments' incumbencies. For illustrative purposes the mean returns for the left-wing governments are calculated under the left column for each sample period by adding the difference to the right-wing value. All returns are lagged for one month and computed as logarithmic values and presented in annualized percentage points. \*\*\*, \*\*, \* denote statistical significance at 1%, 5% and 10% levels respectively.

	1917-2009 (1067 obs)			1917-1986 (792 obs)			1987 - 2009 (275 obs)		
	<i>Left wing, 663 obs</i>	<i><math>\alpha</math> (Right wing), 405 obs</i>	<i><math>\beta</math> (Difference)</i>	<i>Left wing, 468 obs</i>	<i><math>\alpha</math> (Right wing), 324 obs</i>	<i><math>\beta</math> (Difference)</i>	<i>Left wing, 195 obs</i>	<i><math>\alpha</math> (Right wing), 80 obs</i>	<i><math>\beta</math> (Difference)</i>
VWER	7,26	-0,09	7,36 **	5,13	-0,15	5,28 *	13,76	-3,22	16,97
VWRR	8,26	4,60 *	3,66	5,88	4,94 *	0,95	16,51	1,10	15,41
EWER	10,33	3,87 *	6,47 **	8,39	4,43 **	3,96	14,27	-10,44	24,71 ***
EWRR	10,93	7,97 ***	2,96	9,08	8,92 ***	0,15	16,67	-6,60	23,27 ***
RIR	2,10	3,72 ***	-1,62 ***	1,55	3,39 ***	-1,84 ***	-	-	-

Li and Campbell (2004) find that OLS and GARCH regression give different results. Adversely to this, my results in GARCH model are consistent with OLS regression and univariate analysis.

Similar to the OLS regression results, there is a perceivable leftist premium in the GARCH model as well. GARCH regression seems to do a better job explaining the returns with leftist binary variable than OLS binary regression, since the results are more significant. The difference in returns between leftist and rightest governments in GARCH model and OLS model are similar but for excess returns results in GARCH model are significant at the 5% level. If the difference between left and right-wing governments in the excess returns is more significant in general in GARCH model, the difference in the real returns doesn't seem to improve to be more significant at all during the 1917 -1986 period. This reinforces the argument that the difference in returns might be driven by higher inflation during the left-wing governments.

Real interest rates are once again lower during left-wing governments compared to right-wing governments, non-negative though. Overall, the binary GARCH model verifies the earlier results that at least the excess returns have been significantly greater for leftist governments since 1917.

### 5.3.2 The freely varying leftist variable

The results of GARCH regression model that uses freely varying leftist variable are presented in Table 7. It is noteworthy to remind the reader once again that point estimate  $\alpha$  does not represent a meaningful value for an average right-wing government (see discussion in Section 5.2) as point estimate  $\beta$  is the coefficient that I am studying.

**Table 7: The average difference in returns under the left and right-wing governments  
(GARCH leftist variable regression)**

This table presents the mean returns for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes, and real interest rate return (RIR) portfolio. The mean returns are from the following GARCH regression  $r(t+1) = \alpha + \beta Dt + \varepsilon(t+1)$  where the freely varying leftist variable is an explanatory variable  $Dt$  and the constant  $\alpha$  denotes the mean returns for the fully right-wing governments. The coefficient  $\beta$  represents the difference per one leftist unit compared to  $\alpha$ , i.e. how much increase or decrease of one leftist unit changes the expected returns of a government compared to the fully right-wing governments. All returns are lagged for one month and computed as logarithmic values and presented in annualized percentage points. \*\*\*, \*\*, \* denote statistical significance at 1%, 5% and 10% levels respectively.

	1917-2009 (1067 obs)		1917-1986 (792 obs)		1987 - 2009 (275 obs)	
	$\beta$ (Leftist)	$\alpha$ (Completely rightest)	$\beta$ (Leftist)	$\alpha$ (Completely rightest)	$\beta$ (Leftist)	$\alpha$ (Completely rightest)
VWER	4,41 ***	-19,37 **	3,24 **	-14,44 *	19,78 **	-96,84 **
VWRR	2,85 *	-8,48	1,59	-2,93	18,01 **	-84,19 *
EWER	4,05 ***	-13,98 *	2,63 *	-7,34 **	25,25 ***	-128,26 ***
EWRR	2,50 *	-3,65	1,18	2,72	23,19 ***	-114,22 ***
RIR	-1,09 ***	8,54 ***	-0,75 ***	6,42 ***	-	-

For value-weighted and equal-weighted excess returns point estimate  $\beta$ s are 4,41 and 4,05 percentage points at the 1% levels for the whole sample period. Additionally, for value-weighted and equal-weighted real returns point estimate  $\beta$ s are 2,85 and 2,50 percentage points at the 10% level.

For all the regression models tested the CARCH regression with free leftist variable as explanatory variable produces the most significant results. Point estimate  $\beta$ s are significant at the 10% level for all return indexes for the whole sample and also for the latter subsample. Value-weighted and equal-weighted excess returns indexes are significant at the 5% level in both subsamples and confirms the earlier observations of excess returns being significantly elevated under left-wing governments. Real return –indexes are also showing positive relation along the line for leftist governments but the effect is smaller and less significant. Much like in the other regressions the latter sample period produces

larger than predicted point estimates and seems to be dominated by the high volatility caused by the recent crises.

### **Concluding the regression results**

Considering the results obtained by the OLS and GARCH regression, the null hypothesis (H0) that the stock returns under left and right wing governments do not statistically differ from each other, can be rejected for excess return indexes. I find statistically significant abnormal returns associated with left-wing regimes for the sample period. For real return indexes the results are in line with excess returns results but are not statistically significant. The results for the subsamples are showing abnormal returns for left-wing governments but are not statistically significant.

Similarly, the null hypothesis (H1) that the leftist variable has no explanatory power, can be rejected for the excess return indexes for the whole sample period and for both subsample periods as well. For real return indexes the results are significant at the 10% level for the whole sample period but not for either one of the subsample periods.

### **5.4 Expected vs. Unexpected returns**

To observe whether the elevated returns associated to the leftist variable are expected or unexpected, I will examine the return indexes around the election dates. The null hypothesis is that there is no difference between returns near elections dates (the months before and after formation of the government) and other returns periods.

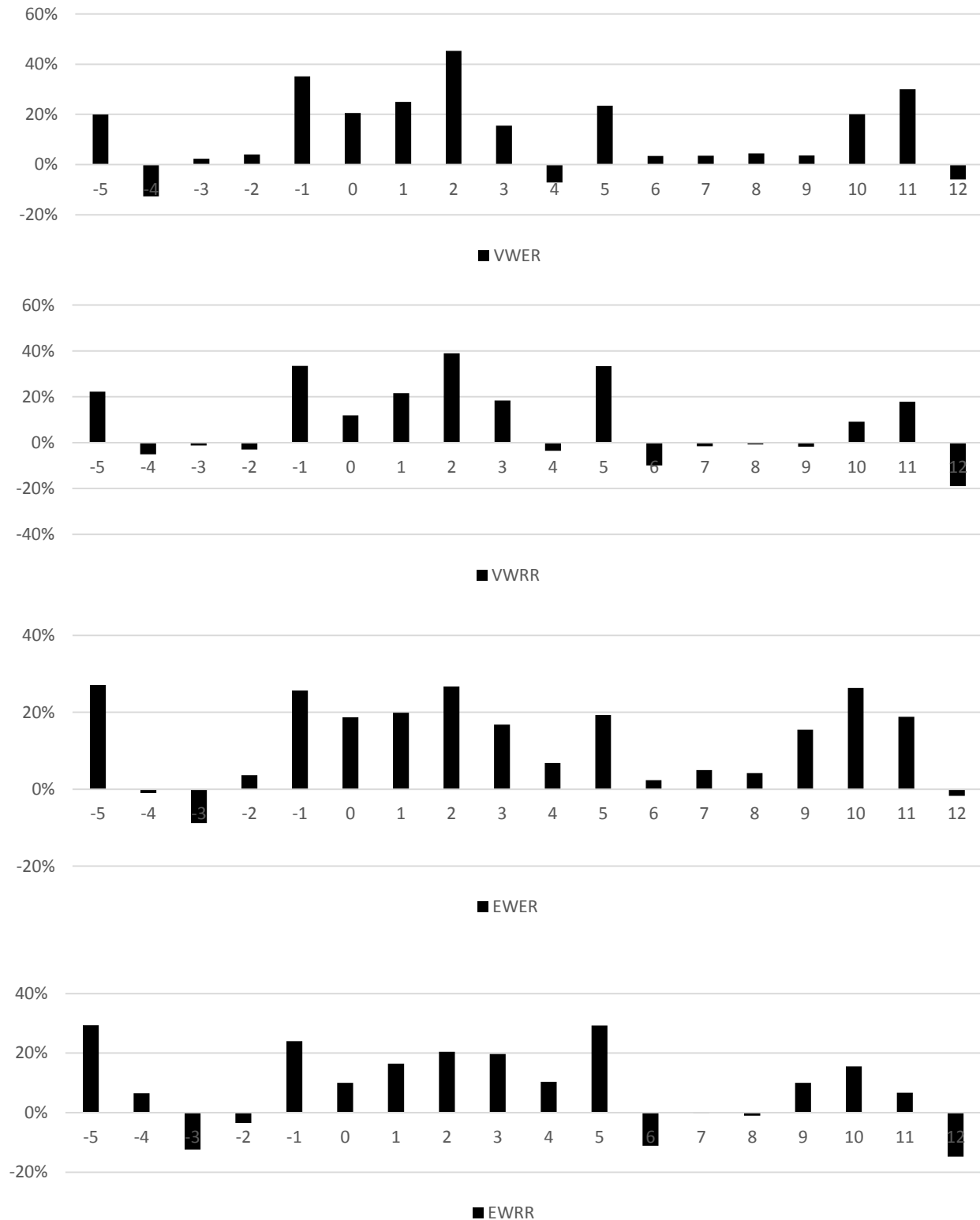
The following Figures 2 shows month-by-month difference of the returns for left and right-wing governments for value-weighted excess return, value-weighted real return, equal-weighted excess return and equal-weighted real return indexes, respectively. Positive values stand for excess return for left-wing governments.  $T_0$  matches the month when the government was formatted. This is usually around one month after the elections. The data does not include overlapping values<sup>27</sup>. The number of governments in each data point and full thirty-six-month graphs of month-by-month difference of the returns for left and right-wing governments can be found in appendix F. As the thirty-six-month graph in the Appendix E illustrates, the notable difference in returns vanishes after a year and a half.

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<sup>27</sup> If there is a new government formed e.g. 4 months after the last one, the former government will have values calculated forward for only the first three months. Similarly, the latter government will only have values calculated back for the last 3 months. Therefore, positive or negative months cannot overlap but there is cross-overlapping between negative and positive months.

## Figure 2. The election shocks: abnormal leftist returns

The figure illustrates annualized monthly average returns around formation of the governments for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes. The month-by-month returns are calculated by subtracting the average right-wing returns from the average left-wing returns. The division to left- and right-wing governments is done by using the binary leftist value. The sample period is 1917-2007.



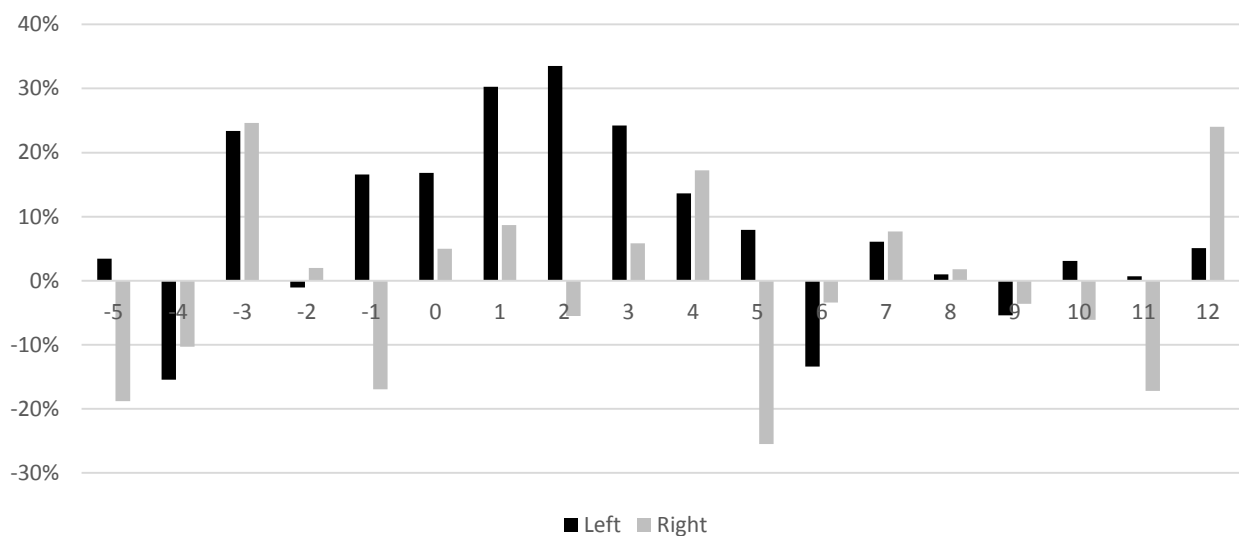


There is a negligible difference between the parties during the months leading to formatting of government up until one month before the announcement of the government. As mentioned earlier, announcement of the government usually happens around month after the elections and therefore it seems that higher than normal leftist returns start to accrue around the election month. From  $t_{-1}$  until few months after the announcement there is a notable positive development in the stock market during left-wing regimes.

The following the Figure 3 presents month-by-month returns separately for left and right-wing governments we can see that the positive returns of first months are due to an exceptionally good index development under left-wing governments.

### Figure 3. The election shocks: Value-weighted excess return

The figure illustrates annualized monthly average returns around formation of the governments for value-weighted excess return index. The month-by-month returns are presented separately for left-wing and right-wing governments. The division to left- and right-wing governments is done by using the binary leftist value. The sample period is 1917-2007.



In consideration of the results presented above, I study the election shock by using the month before the formation of the government ( $t_{-1}$ ), the month of formation of the government and the three-months after the election as a dummy variable. The selection of five-month period can be argued with above results but also considering that the Finnish stock market has not been efficient at all times (Worthington and Higgs (2003), Shaker (2013)) and therefore political events might not be priced immediately. For the purposes of quick review, the following univariate analysis shows the average returns around the elections for both left and right-wing governments as changes in value-weighted excess returns:

**Table 8: Univariate analysis of the election shocks**

This table reports the mean returns for value-weighted excess return index for the left and right-wing governments during the election months and non-election months. The election months are  $t = -1, 0, 1, 2, 3$ , where the month of formation of the government is denoted as  $t = 0$ . The observations do not overlap within  $t > 0$  group (1, 2, 3) or within  $t \leq 0$  group (-1, 0), i.e. the same month cannot be e.g.  $t = 1$  for two different governments. However, the observations do overlap across the before-after groups, i.e. the same month is calculated once for both former and latter government if election are held within two months from each other. The results are separated for the left and right-wing governments by using the binary leftist variable. All returns are presented in annualized percentage points.

	1917-2009 (1068 obs)			1917-1986 (792 obs)			1987 - 2009 (275 obs)		
	<i>Left (663 obs)</i>	<i>Right (405 obs)</i>	<i>Diff</i>	<i>Left (468 obs)</i>	<i>Right (324 obs)</i>	<i>Diff</i>	<i>Left (195 obs)</i>	<i>Right (81 obs)</i>	<i>Diff</i>
Election months	28,2	-0,6	14,4	23,7	0,6	12,0	53,8	-18,0	33,6
Non-election months	3,0	2,5	2,8	2,9	5,3	3,8	3,2	-5,0	0,8

For the whole sample period the left-wing governments had an average value-weighted excess returns of 28,2 % whereas right-wing governments have actually a negative return of -0,6% on average. On the other hand, the left-wing governments only had on average 3,0% value-weighted return during non-election months compared to 2,5% of right-wing governments. Similarly in both subsamples, there seems to be exceptionally high returns around the election dates whenever left-wing government has been formed. This observation supports a conclusion that investors actually price the selection of left-wing government on stock prices following the months the information becomes available.

Next I will study the matter in more detail with regression model by using election date data as a dummy variable. Considering the fact that all regression models produces similar results and OLS model is used in previous studies (Santa-Clara and Valkanov, 2003), I will present the data from OLS model using leftist variable for the whole time period. The following Table 9 shows regress return indexes on the leftist variable and the election date dummy variable ( $t_{-1} - t_3$ ), and the regression is first completed separately for all governments and, additionally, individually for left-wing and right-wing governments. By using separate regressions for left and right-wing governments I can study if there is a statistically significant difference between left and right-wing governments on how the return indexes develop during the election months.

**Table 9: The average returns under the left and right-wing governments (OLS regression explained by the leftist variable and controlled for the election months)**

The table presents the mean returns for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes. The mean returns are from the following OLS regression  $r(t+1) = \alpha + \beta D1t + \delta D2t + \varepsilon(t+1)$  where the freely varying leftist variable is an explanatory variable  $D1t$ . The control dummy variable  $D2t$  receives a value of 1 if the month in question is an election month ( $t = -1, 0, 1, 2, 3$ ) for any of the governments and otherwise a value of 0. The month of formation of the government is denoted with  $t = 0$ . The coefficient  $\beta$  represents the difference in returns per one leftist unit compared to fully rightest government whereas the coefficient  $\delta$  reports how the mean returns differ between the election and non-election months. The constant  $\alpha$  reports the mean returns during the right-wing governments' incumbencies in non-election month. The results are presented for all governments and both the left-wing and right-wing governments separately. The separation to the left and right-wing governments is done by using the binary leftist variable. All returns are lagged for one month and computed as logarithmic values and presented in annualized percentage points. \*\*\*, \*\*, \* denote statistical significance at 1%, 5% and 10% levels respectively.

	All governments 1917-2009 (1068 obs)			The left-wing governments 1917-2009 (663 obs)			The right-wing governments 1917-2009 (423 obs)		
	$\beta$ (Leftist)	$\delta$ (Election)	$\alpha$	$\beta$ (Leftist)	$\delta$ (Election)	$\alpha$	$\beta$ (Leftist)	$\delta$ (Election)	$\alpha$
VWER	5,75 **	13,57 ***	-29,96 **	8,29	25,53 ***	-48,88	2,21	-2,57	-7,74
VWRR	3,90 *	10,86 **	-19,26	6,30	23,81 ***	-37,90	8,18	-5,25	-31,86
EWER	4,41 **	11,07 ***	-17,81	3,56	19,78 ***	-14,54	3,36	-0,32	-9,02
EWRR	2,56	8,36 **	-7,11	1,57	18,06 ***	-3,56	9,33	-3,00	-33,13

When studying all governments, the point estimate  $\beta$  for leftist variable is significant for all indexes except for equal-weighted real return index. Additionally, point estimate  $\beta$  for election months is significant and actually larger than the corresponding point estimate  $\beta$  for election dates. Corresponding point estimates in sub regression for left and right-wing governments reveal that election months are only significant for left-wing governments. Point estimates also show that for left-wing governments the election month's dummy variable is three to ten times greater than leftist variable. For right-wing governments the election month's dummy variable is insignificant and negative. Interestingly, when controlling for elections months and division between left-wing and right-wing governments the leftist variable is not significant anymore within sub regressions. This indicates that while the election shock effect is only significant for left-wing governments, it is so dominating for them that the degree of "leftness" of a governments becomes insignificant. Hence, the results of binary-regressions and the artificial division to left and right-wing governments seems to be validated by these findings.

Considering that results above, it seems that investors are reacting positively on the stock market to formations of a left-wing government and there is an absence of reaction if the elected government is rightest.

Not reported here, but the explanatory power of regressions also becomes more significant when controlling for election months.

Greater excess and real returns around the election dates for left-wing governments cannot be because of difference in risk-free rate or inflation. Risk-free rates are generally similar for both left and right-wing governments and higher inflation under left-wing regimes mean that it would actually have a negative effect on the stock market when a left-wing government is formed<sup>28</sup>.

### 5.5 Leftist risk premium

Volatility of stock market has changed over the years, high points reached in the aftermaths of the Second World War and the tech bubble in early 2000's, as can be seen in Appendix G. Greater volatilities under left-wing regimes could explain the higher returns as well. This section will test if stock return volatilities have been significantly different for left and right-wing governments.

Table 10 presents average volatilities for the sample period and different subsample periods. Volatilities will be tested for all return indexes.

**Table 10: Stock return volatility (Univariate analysis)**

This table reports average annual volatilities (derived from monthly values) for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes. The governments are divided to left and right-wing governments by the binary leftist variable and the results are reported separately for both governments. The results are also presented separately for both sub-periods and the whole sample period and the right-side column under each sample period reports the difference between the governments (left - right) All returns are computed as logarithmic values and presented in annualized percentage points.

	1917-2009 (1057 obs)			1917-1986 (781 obs)			1987 - 2009 (275 obs)		
	<i>Left (663 obs)</i>	<i>Right (394 obs)</i>	<i>Diff</i>	<i>Left (468 obs)</i>	<i>Right (313 obs)</i>	<i>Diff</i>	<i>Left (195 obs)</i>	<i>Right (81 obs)</i>	<i>Diff</i>
VWER	18,58	15,34	3,24	16,11	12,55	3,56	24,51	26,13	-1,61
VWRR	18,61	16,13	2,48	16,14	13,53	2,61	24,55	26,17	-1,62
EWER	13,86	13,77	0,10	13,12	10,83	2,29	15,64	25,10	-9,46
EWRR	13,94	14,88	-0,94	13,19	12,23	0,96	15,74	25,13	-9,39

<sup>28</sup> <http://www.investopedia.com/articles/investing/052913/inflations-impact-stock-returns.asp>

On average, the yearly stock market volatility has been higher for left-wing governments during the former subsample but lower during the latter. During the latter sample period volatilities have been higher in general. For the whole sample period the difference in volatilities have been from 3,24 to -0,94 percentage points (greater) for left-wing governments.

The following Table 11 will present results of regressions analysis on volatilities. Point estimate  $\beta$  refers to abnormal volatility of the leftist variable.

**Table 11: The average difference in volatility under the left and right-wing governments (OLS leftist variable regression)**

This table presents the average volatilities for value-weighted excess return (VWER), value-weighted real return (VWRR), equal-weighted excess return (EWER) and equal-weighted real return (EWRR) indexes. The average volatilities are from the following OLS regression  $\text{Vol}(t+1) = \alpha + \beta \text{Dt} + \varepsilon(t+1)$  where the freely varying leftist variable is an explanatory variable  $\text{Dt}$  and the constant  $\alpha$  denotes the average volatility for the fully right-wing governments. The coefficient  $\beta$  represents the difference in volatilities per one leftist unit compared to  $\alpha$ . All volatilities derived from returns which are lagged for one month and computed as logarithmic values. \*\*\*, \*\*, \* denote statistical significance at 1%, 5% and 10% levels respectively.

	1917-2009 (1057 obs)		1917-1986 (782 obs)		1987 - 2009 (275 obs)	
	$\beta$ (Leftist)	$\alpha$ (Completely rightest)	$\beta$ (Leftist)	$\alpha$ (Completely rightest)	$\beta$ (Leftist)	$\alpha$ (Completely rightest)
VWER	0,61 ***	1,60 ***	0,42 ***	1,90 ***	0,40	4,88 ***
VWRR	0,48 ***	2,41 ***	0,28 ***	2,78 ***	0,41	4,87 ***
EWER	0,16 **	3,10 ***	0,27 ***	2,02 ***	-1,85 ***	16,08 ***
EWRR	-0,03	4,28 ***	0,07	3,31 ***	-1,84 ***	16,09 ***

For value-weighted excess return, value-weighted real return and equal-weighted excess return indexes there is a significant difference in volatilities and point estimate  $\beta$  is positive. These results confirm that stock market tends to have higher volatility under left-wing governments, at least for the former subsample period. For the latter subsample period the results are mixed as value-weighted indexes show left-wing governments to have higher volatility (statistically non-significant at the 10%) and adversely equal-weighted indexes show that right-wing governments having higher volatility (statistically significant at the 10% level).

The question is whether the higher volatility during the left-wing governments' incumbencies can justify the higher returns for these governments. To scrutinize this I regress all four total return

indexes using the freely varying leftist variable as an explanatory variable and simultaneously the stock market volatility as a control variable. As the constant  $\alpha$  represents a fully rightist government during whose incumbency there is no volatility in the market and the explanatory variables one unit's marginal deviation from that, the presentation of the coefficients is rather pointless. However, I am interested to know if the coefficients are significant and therefore I present the sign of each coefficient and significance of the variable. The results are reported in the following Table 12.

**Table 12: Significance of the leftist variable explaining stock returns when volatility is controlled (OLS regression)**

The table reports the mean returns as a Boolean value for value-weighted and equal-weighted return indexes depending on the value being negative (-) or positive (+). \*\*\*, \*\*, \* denote statistical significance of the results at 1%, 5% and 10% levels respectively. The OLS regression is  $r(t+1) = \alpha + \beta D1t + \delta D2t + \varepsilon(t+1)$  where the freely varying leftist variable is an explanatory variable  $D1t$  and volatility control variable an explanatory variable  $D2t$ . The results are presented separately for both sub-periods and the whole sample period. All returns are lagged for one month and computed as logarithmic values. \*\*\*, \*\*, \* denote statistical significance at 1%, 5% and 10% levels respectively.

	1917-2009 (1057 obs)			1917-1986 (781 obs)			1987 - 2009 (275 obs)		
	$\beta$ (Leftist)	$\delta$ (Volatility)	$\alpha$	$\beta$ (Leftist)	$\delta$ (Volatility)	$\alpha$	$\beta$ (Leftist)	$\delta$ (Volatility)	$\alpha$
VWER	+	-	-	+	-	-	+	-	-
	**		*	**					
VWRR	+	-	+	+	-	+	+	-	-
		**			***				
EWER	+	+	-	+	+	-	+	+	-
	**	*	*	**		*	**	***	*
EWRR	+	+	+	-	-	+	+	+	-
					**	*	**	***	*

The results in Table 12 support my argument that the leftist variable is significant at least for excess return indexes. For the whole sample period and the former sub-period the freely varying leftist variable is significant and positive at the 5% level for value-weighted and equal-weighted excess return indexes. Moreover, coefficient  $\beta$  is positive throughout the whole sample period (excluding the equal-weighted real return index during the former sub-period). During the latter period the leftist variable is significant at the 5% level for the equal-weighted indexes. The sign of volatility's coefficient is not consistent throughout the sample but highly significant at times which seems to support view of the risk based explanation having some merit to it. Nevertheless, explanatory power of the leftist variable in the OLS regressions is equally significant when volatility is controlled and

therefore even though volatility has been higher for the left-wing governments, at least during the former sample period, it cannot alone explain the difference in returns.

## 6. Conclusions

In this thesis I examine and argue the effect of political orientation (on the left-right axis) of a government on inflation and interest corrected total stock returns. The results obtained by previous literature have been mixed and mostly focused on the United States of America and their bi-party political system. I expand and contribute to the existing studies by introducing a new ninety year data sample from Finland. Moreover, I am using a freely varying “leftist variable” borrowed from social sciences to illustrate both how far on the left governments are and to divide governments in the Finnish multi-party system into left-wing and right-wing governments. Following the methodology and hypothesis of Santa-Clara and Valkanov (2003) I test ( $H0$ ) if left-wing governments are associated with abnormal returns and expand this by also testing ( $H1$ ) if a leftist variable can be used as an explanatory variable to explain abnormal returns. Similar to Santa-Clara and Valkanov (2003) I find statistically significant evidence supporting abnormal excess returns during incumbency of left-wing governments. However, due to higher inflation induced by left-wing governments, I only find non-significant evidence supporting abnormal real returns during incumbency of left-wing governments. Contradicting previous studies of election shocks, I find that abnormal left-wing returns are realized around election months. The stock market suffers from slightly higher volatility during left-wing governments but my results cannot be explained solely on difference in volatility.

The most significant results are obtained by a using freely varying leftist variable instead of arbitrary but justifiable division to left and right-wing governments. Nevertheless, the use of a left – right division makes an illustration and comparability of the results easier. Excess returns are around six to seven percentage points and real returns around two to three percentage points higher for left-wing governments. Moreover, results from a freely varying leftist variable regressions support the aforementioned conclusions. My study on election shocks shows that stock returns are higher around election months only when left-wing governments are formatted. These results contradict arguments in previous literature. Controlling election months for left-wing governments reveals that during non-election months the leftist variable is non-significant. Therefore, it seems that in Finnish investors price the political effect into the valuations after elections and the excess returns related to the leftist variable are at least partly expected. Alternatively, it can be speculated that left-wing governments

have enacted expansive politics during the first months of their incumbency. Unfortunately, this cannot be verified hence there are no monthly records of GDP growth beyond 1975.

In previous studies the differences in returns between left and right-wing governments are greater when comparing equal-weighted return indexes than while comparing value-weighted return indexes. This is due to equal-weighted indexes put more weight on small companies (Santa-Clara and Valkanov, 2003) and higher returns for small companies under left-wing governments are actually just a compensation for higher risk (Sy and Zaman, 2011). Nevertheless, in my four different regressions<sup>29</sup> and univariate analysis, my findings do not support the results of earlier studies when comparing value and equal-weighted indexes. Although, I am not truly able to study this phenomenon because my data lacks size decile indexes<sup>30</sup>, I actually find that the difference between left and right-wing governments is greater in value-weighted than in equal-weighted indexes even though it should be on the contrary in case the abnormal left-wing government returns were driven by the “size effect”. Moreover, regression run in Section 5.5 on volatility of stock returns reveals that an increase in volatility due to the leftist variable is greater for value-weighted indexes than for equal-weighted indexes. This implies that left-wing regimes do not induce higher risk to small companies. Therefore, my findings do not support, but neither invalidates, the theory of increased risk of small companies explaining the abnormal returns.

As a reference to the future studies, new data sets would be needed to overcome the shortcomings of this study and to verify election shocks being the driving force for abnormal leftist returns in Finland. To begin with, daily return data would shed more light on the election shock phenomenon. Secondly, separate indexes for size deciles are needed to conclusively study if increased risk of small companies can explain the “Parliamentary Puzzle” in Finland.

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<sup>29</sup> OLS binary variable, OLS leftist variable, GARCH binary variable, CARCH leftist variable

<sup>30</sup> See discussion in section 4.2.1



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## 8 Appendix

### Appendix A

Jussi, Westinen, 2007. Yhteiskunnallisten ristiriitailottuvuuksien ja puoluevalinnan suhde eduskuntavaaleissa. Summary of leftist values that Westinen gives to voters of each party. Voters' opinions measured in 1991-2007 parliamentary elections in Finland.

	LA	SDP	Finns	Green	Christ.	Centre	SFP	NCP
1991	7,8	6,4	5,2	4,5	4,2	3,9	3,3	2,4
1995	8,7	6,9	5,3	0,0	3,3	3,0	2,3	1,6
1999	7,8	6,6	5,8		4,0	3,3	2,0	1,9
2003	6,7	5,3	5,3		4,2	3,3	3,3	2,7
2007	8,0	6,3	5,8	5,4	4,8	4,0	3,6	2,5
Average	7,8	6,3	5,5	5,0	4,1	3,5	2,9	2,2

### Appendix B

Liberals have historically been a right-wing party supporting individual freedoms and free market economy. Nevertheless, liberals cannot be given a value in left – right wing –axis since they have had de facto no support in recent years and are not part of voting aid application results. Therefore I will use a historical assessments to value them.

In their early days Liberals (The National Progressive Party) shared political heritage with NCP and their predecessors (Jussila, Hentilä and Nevakivi, 2006). Therefore for years between 1917 and 1964 the party will receive the same valuation as NCP. In 1965 and thereafter, when the party was named as Liberals, they were getting ideologically closer to Centre than NCP<sup>31</sup> and likewise they get valuation equivalent to Centre for years 1965-2011.

<sup>31</sup> <http://fi.wikipedia.org/wiki/Liberaalit>

## Appendix C

The leftist values and verbal comments (in Finnish) for each government where available. References:

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Assumed the office	Name of the Government	Leftist value	Comment (in Finnish)
27.11.1917	1. Svinhufvud	3,7	"Svinhufvudin senaatin, johon kuului yksinomaan porvarillisten ryhmien edustajia"
27.5.1918	2. Paasikivi	3,6	"tuona aikana vasemmistolla ei ollut minkäänlaista mahdollisuutta osallistua poliittiseen vallankäyttöön" s. 118
27.11.1918	3. Ingman	3,6	"porvarillinen kokemuushallitus" s. 120
17.4.1919	4. Castren K.	4,2	
15.8.1919	5. Vennola	3,8	
15.3.1920	6. Erich	4,0	"porvari enemmistöhallitus" .145
9.4.1921	7. Vennola II	3,9	
2.6.1922	8. Cajander		
14.11.1922	9. Kallio	4,3	"sisäpolitiikan suunta oli kääntymässä selvästi oikealle" s.144
18.1.1924	10. Cajander II		
31.5.1924	11. Ingman II	4,4	"porvari enemmistöhallitus" .145
31.3.1925	12. Tulenheimo	4,2	"Kokoomuksen ja maalaisliiton vähemmistöhallitus" s.146
31.12.1925	13. Kallio II	4,1	"Kokoomuksen ja maalaisliiton vähemmistöhallitus" s.146
13.12.1926	14. Tanner	7,2	"puhdas sosiaalidemokraattinen ministeriö, järkytys oikeistolle" s.14
17.12.1927	15. Sunila	4,9	
22.12.1928	16. Mantere	3,3	
16.8.1929	17. Kallio III	4,9	"hallitus esitti kommunistilakeja laupuan liikkeen painostuksesta" s.154
4.7.1930	18. Svinhufvud II	4,2	
21.3.1931	19. Sunila II	4,3	"neljän puolueen porvarillinen enemmistöhallitus" s.157

14.12.1932	20. Kivimäki	4,1	"vähemmitöhallitus mitä sosiaalidemokraatit tukivat huonomman vaihtoehdon pelossa"
7.10.1936	21. Kallio IV	4,6	"vahvasti maalaisliittolainen, sosiaalidemokraateilla ei asiaa hallitukseen" s.165-166
12.3.1937	22. Cajander III	5,6	"puolueet sopivat että pääministerin salkku annetaan hallituksen puolueettomalle osapuolelle, SDP vahva mies Tanner valtionvarainministeri" s. 166
1.12.1939	23. Ryti	5,5	WWII, all were parties represented
27.3.1940	24. Ryti II	5,4	
4.1.1941	25. Rangell	5,4	
5.3.1943	26. Linkomies	5,3	
8.8.1944	27. Hackzell	5,6	
21.9.1944	28. Castren U.	5,7	WWII, all were parties represented
17.11.1944	29. Paasikivi II	6,1	
17.4.1945	30. Paasikivi III	6,7	
26.3.1946	31. Pekkala	6,7	
29.7.1948	32. Fagerholm	7,2	
17.3.1950	33. Kekkonen	4,6	"SDP kieltäytyi ja kokoomosta ei voitu ottaa mukaan ulkopoliittisista syistä"
17.1.1951	34. Kekkonen II	5,8	"maalaisliitolla ja SDP:llä yhtäpaljon edustajia mutta kolmen muun porvarillisen ehdokkaan takia tasapaino kallistui maalaisliiton eduksi" s.253
20.9.1951	35. Kekkonen III	6,0	"kekkosen liittoutuminen vasemmistokanssa synnytti puheita sosialisimisyrityksistä" s.254
9.7.1953	36. Kekkonen IV	4,8	"kustannuskriisi, menoja karsittiin, vasemmiston kanssa liittoutunut kansanpuolue vastusti" s.255
17.11.1953	37. Tuomioja	3,6	"sitoutumattomaksi luonnehdittu oikeisto suuntainen ministeriö, sääntelytalous purettiin" s.256
5.5.1954	38. Törngren	5,9	"pitkä kauppasopimus Neuvostoliiton kanssa"
20.10.1954	39. Kekkonen V	6,1	"SDP ammattiyhdistyssiiven kasvava vaikutus, tukipalkkio-ohjelma tuli kalliiksi ja julkistalous vaikeuksissa kansantulon kasvusta huolimatta, oikeisto ja SDP johto arvosteli tukiohjelmaa
3.3.1956	40. Fagerholm II	5,8	"tulonsiirtopolitiikkana" s.257
27.5.1957	41. Sukselainen	4,5	"sosiaalidemokraattien liikkumatilaa heikensi keskustaryhmien enemmistö ja yleislakon heikentämät työntekijäjärjestöt" s.264
29.11.1957	42. von Fieandt		"maalaisliiton kumppanina molemmat kansanpuolueet, sisäpoliittisesti vaikea kausi jolloin ei saatu enemmistöhallituksia" s. 264
26.4.1958	43. Kuuskoski		



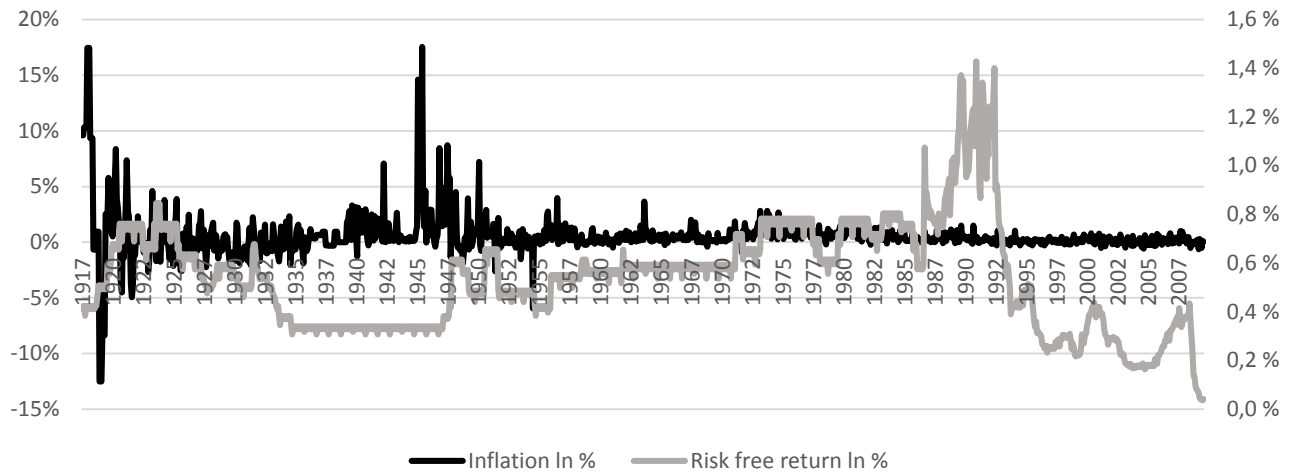
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29.8.1958		"SDP mukana hallituksessa, mutta neuvostoliitto epäili hallituksen koittavan saada maalaisliiton
	44. Fagerholm III	5,2 mukaan Kekkonen vaistaiseen toimintaan ja Suomen ulkopoliittisen kurssin muuttamiseen" s.267
13.1.1959	45. Sukselainen II	4,9 "Maalaisliiton hallitus jonka keskeisenä ohjelmakysymyksenä oli etsiytyminen EFTA:n piiriin"
14.7.1961	46. Miettunen	4,9 "maalaisliiton vähemmistöhallitus"
13.4.1962		"maalaisliitolla hallituskumppanina oikeistolaisia, mutta tasapainottamassa kolme työväen ja
	47. Karjalainen	4,2 pienviljelijäin sosialidemokraattisen liiton edustajaa" s.278
18.12.1963	48. Lehto	"lehdon virkamieshallitus ei saanut raha-asioita kuriin" s.280
12.9.1964		"oikeisto hallitus jossa avainpaikat kuitenkin maalaisliitolla, hallitus joutui korottamaan veroja,
	49. Virolainen	4,3 Sosiaalidemokraatit pitivät itsekkäänä etupolitiikkana" s.279
27.5.1966		"vasemmisto vahvistui kun edellinen hallitus ei kyennyt puolustamaan epäonnistunutta
	50. Paasio	6,6 talouspolitiikkaansa, SDP:lle pääministerin ja valtionvarainministerin salkku" s.281
22.3.1968		"SDP vetoinen hallitus. valtion rooli palkkaneuvotteluissa aktiivinen, valtiolle hintojen ja palkkojen
	51. Koivisto	6,6 säännöstely valtuudet" s.289
14.5.1970	52. Aura	
15.7.1970		"SDP:n yhteistyöhallitus, jonka aikana ammattijärjestöt vahvistuivat, idänkaupan laajennus
	53. Karjalainen II	6,2 (maakaasusopimus)" s.291-292
29.10.1971	54. Aura II	
23.2.1972	55. Paasio II	7,2 "SDP voitti, menoja lisättiin, ei allekirjoitettu vapaakauppasopimusta" s. 295
4.9.1972	56. Sorsa	5,9 "punamulta yhteistyöhallitus, suuret investoinnit teollisuuteen ja energiantuontantoon" s. 295
13.6.1975	57. Liinamaa	
30.11.1975	58. Miettunen II	6,4 "keskustavetoinen hallitus jossa vasemmisto mukana, solmittiin TUPO ja sovittiin hintavaltuuslaki
29.9.1976		"keskusta vaihtoi SDP yhteistyön yhteistyöhön kokoomuksen kanssa, välittömien verojen korotuksen
	59. Miettunen III	4,9 sijasta korotettiin välillisiä veroja" s.306
15.5.1977	60. Sorsa II	6,3 "SDP vetoinen hallitus" s.306
26.5.1979	61. Koivisto II	6,2 "koiviston onnistui ajaa läpi vasemmiston kannattama revalvaatio ja nostaa peruskorkoa" s.309
19.2.1982	62. Sorsa III	6,2 "hyvin samanlainen kuin edellinen hallitus, kolme devalvaatiota" s. 317
6.5.1983	63. Sorsa IV	6,0 "SDP voitti, mutta SDKL katosi kartalta" s.317
30.4.1987	64. Holkeri	5,3 "sinipunakoalitio, tuloja rasittava laaja verouudistus" s.321
26.4.1991	65. Aho	4,3 "keskustan suurvoitto"
13.4.1995	66. Lipponen	5,8 "sinipuna, konsensus politiikkaa, EU" s.335
15.4.1999	67. Lipponen II	5,6 "sateenkaari hallituksen pieni siirtymä oikealle" s.339
17.4.2003	68. Jäätteenmäki	5,9 "keskustavetoinen punamulta hallitus"
24.6.2003	69. Vanhanen	5,9 "keskustavetoinen punamulta hallitus"

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## Appendix D

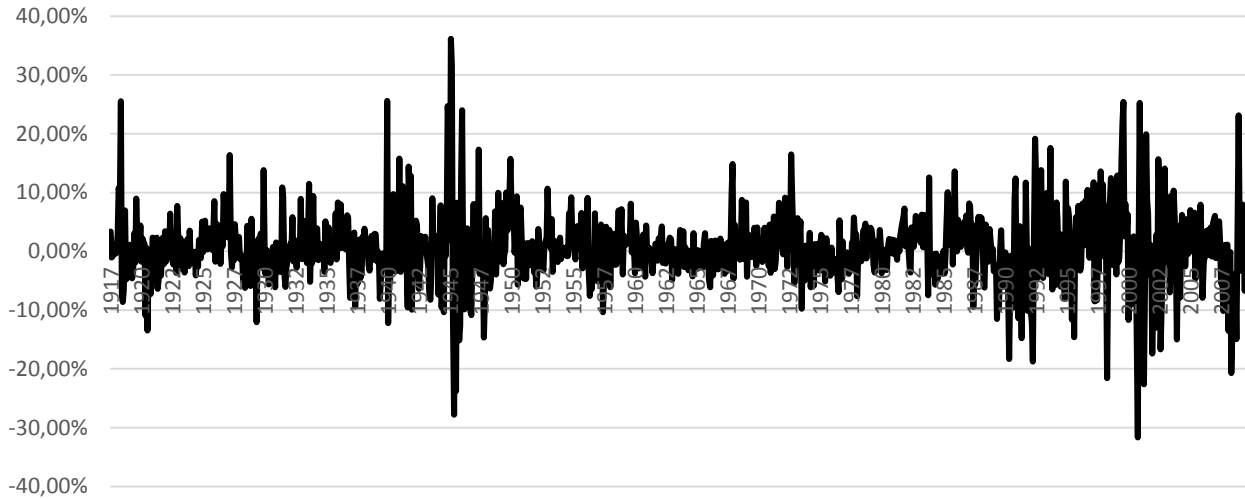
Monthly logarithmic interest rate and inflation values for the sample period of 1917-2007. Inflation is on the left vertical axis and risk-free returns on the right vertical axis.



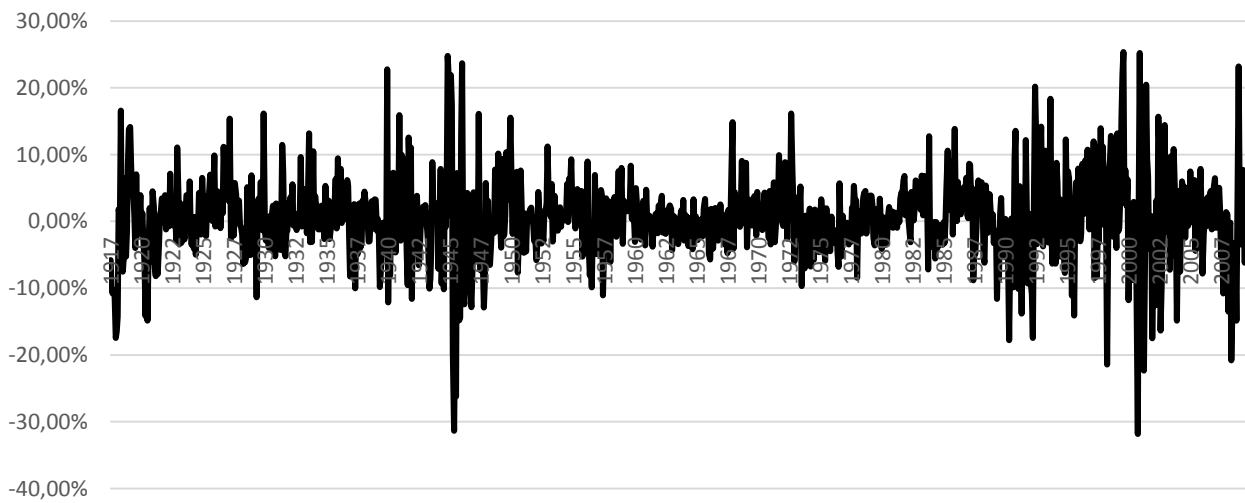
## Appendix E

The monthly return indexes and real interest rate. All values are computed as logarithmic monthly values

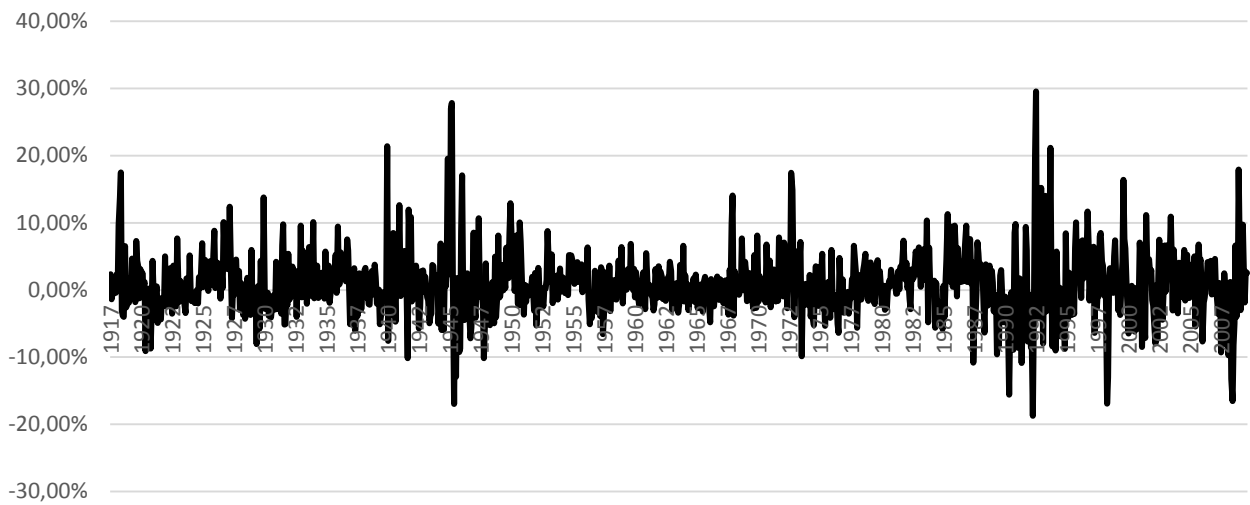
Value-weighted excess return index



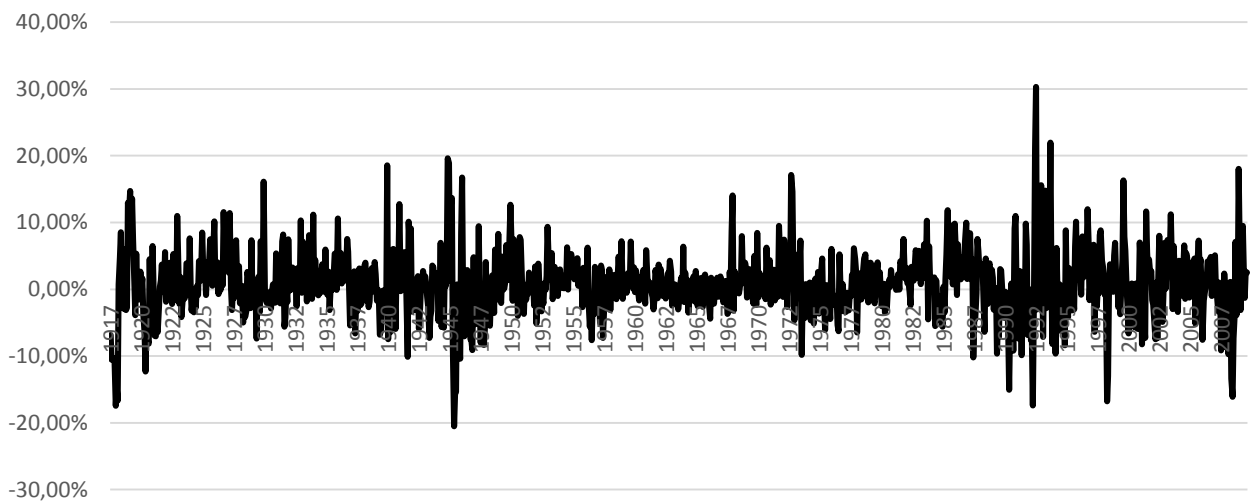
Value-weighted real return index



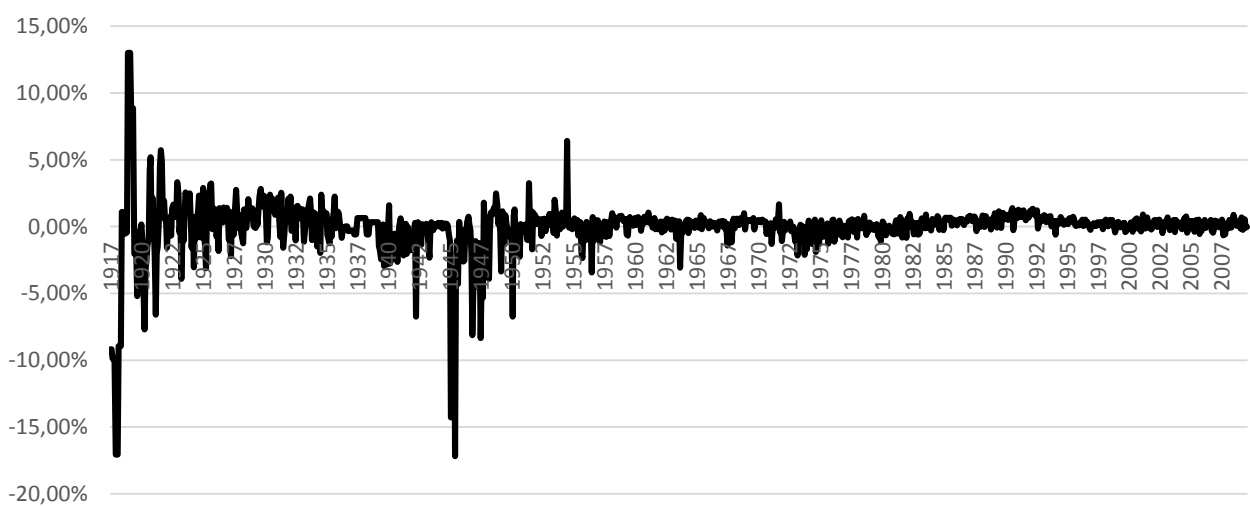
Equal-weighted excess return index



Equal-weighted real return index



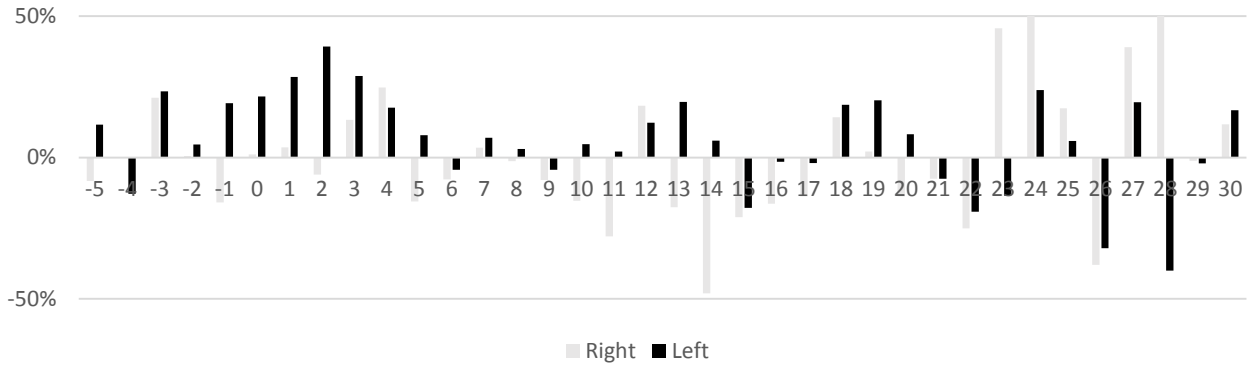
Real interest rate



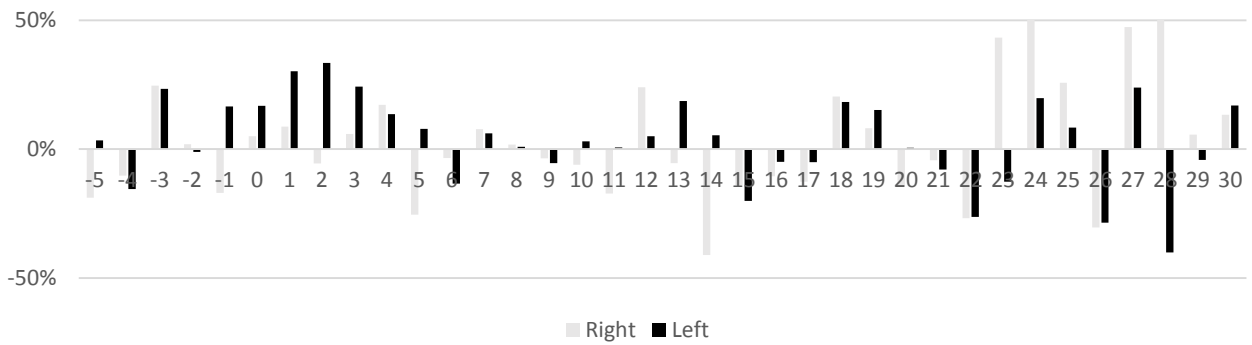
## Appendix F

The monthly returns around elections months for all governments from  $t_{-5}$  to  $t_{30}$ .

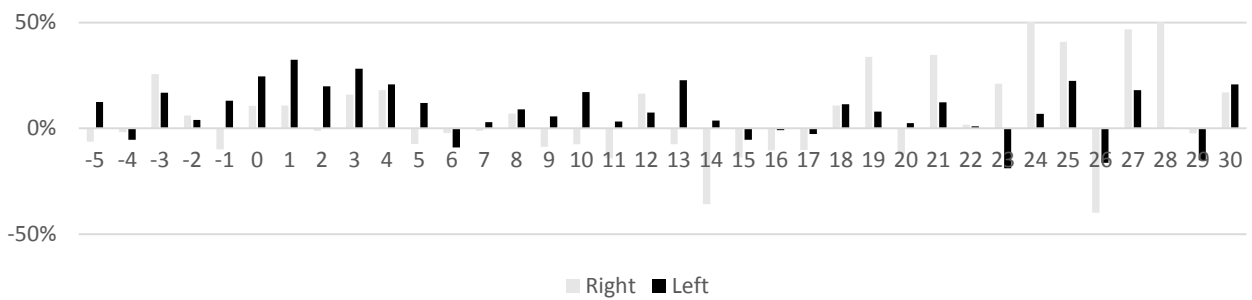
Value-weighted excess return index



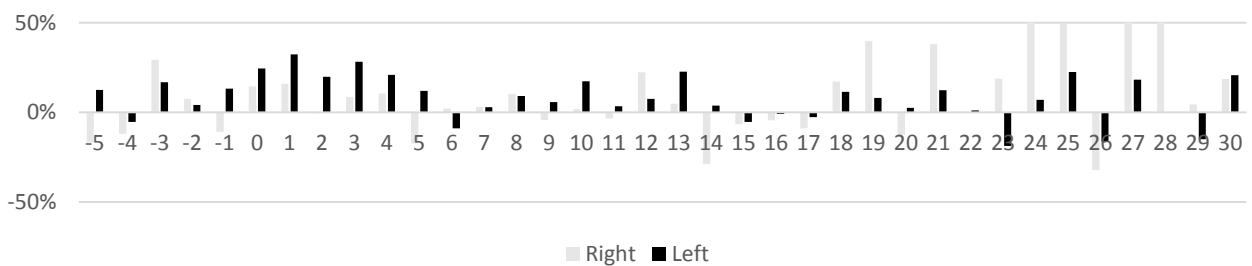
Value-weighted real return index



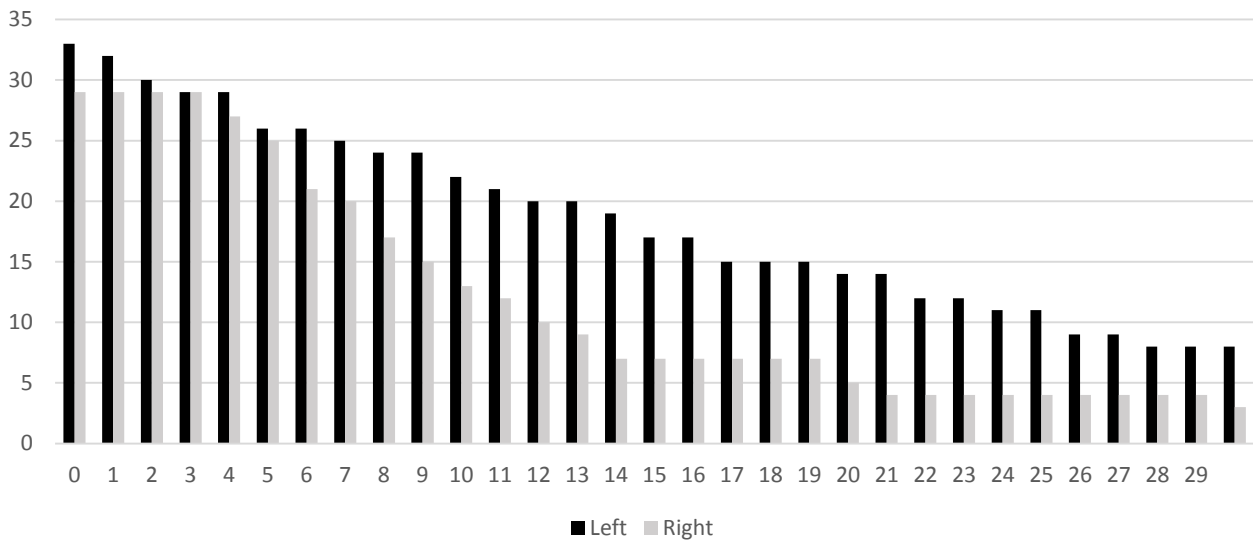
Equal-weighted excess return index



Equal-weighted real return index

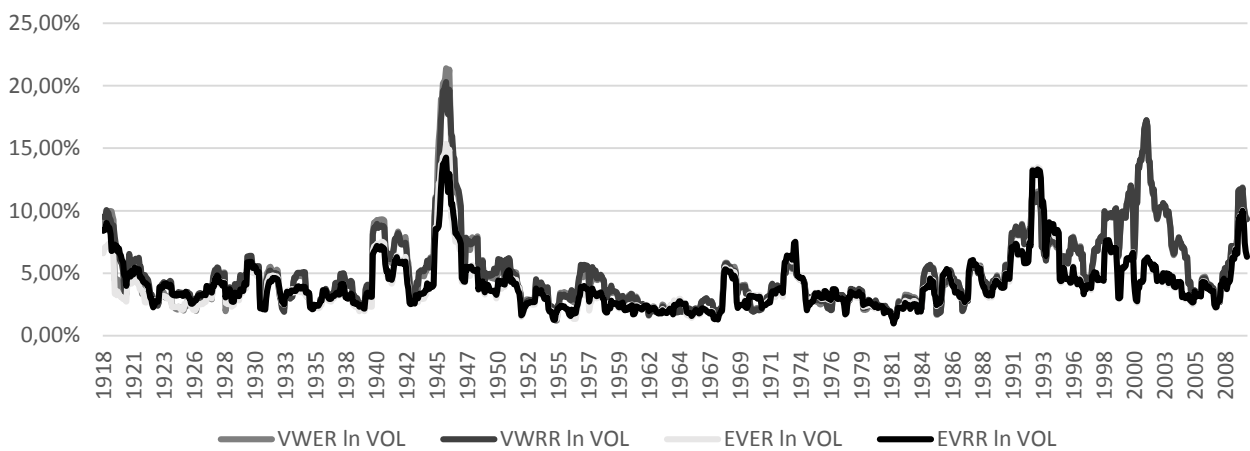


Cumulative distribution of governments according to how long individual governments have reigned. Time is shown in months. Sample of all 62 governments that have a leftist value.



## Appendix G

The monthly volatility of all return indexes over the sample period of 1917-2007.



## Appendix H

The monthly GDP growth and leftness value of the governments from 1917 to 2007.

